THIS WEEK'S National Petroleum NEWS

Index to Coming Meetings

Independent Oil Men of America, Stevens Hotel, Chicago, Oct. 21, 22, 23.

Northwest Petroleum Association, fall convention, Radisson Hotel, Minneapolis, Minn., Oct. 24.

Western Petroleum Refiners Association, Refinery Technologists, Mayo Hotel, Tulsa, Oct. 28, 29.

Mid-Continent Oil & Gas Association, Texas division, San Angelo, Tex., Nov. 8.

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General

Small Operators Contest Enforcement of California Gas Law 27
Fixing Gas-Oil Ratios by Law May be Chief Issue 28
150,000 Attendance Breaks Record for Oil Expositions 29
A.P.I. Report of Refinery Operations 30
Herndon Heads Oklahoma Producers; Drilling Restraint Urged..... 31
Ethics Code, Oil Tariff on Program of I.O.M.A. Congress 32
Pure Oil to Market Gyro Process Gasoline at 4c Premium 33
New York Tank Wagon Drivers Go on Strike 33
Review of Late Production News 34
$218,000,000 of Oil and Gas Financing Announced in Week 35
Refiner Shows Automobile Engineers How Oils Are Made and Tested 36
Progress in Knock Testing—*by Earl Bartholomew* 37
Dr. Brown Comments on Clayden's Knock Testing Article 40
General Proration in Oklahoma Will Become Effective Oct. 16..... 43
Wilcox Strike in McPherson County is Chief Feature of Dull Week..... 47
South Dome Kettleman Hills Well Producing Water at 7000 feet..... 51
Drilling Reports From Leading Fields 52, 53, 54, 55
Modern Practice of Drilling Through Big Gas is Conservation Measure 56
Geologists Study 1600 Miles of Structure 62
Salt Water Disposal Is Problem in Oklahoma City Field 64
U. S. Crude Production and Imports, Week Ended Oct. 11..... 97

Engineering

Grease Symposium Papers
I Grease Making—Past and Present—*by A. R. Lange*..... 67
II Tests of Lubricating Greases and Their Relative Values—*by F. L. Koethen* 69
III Methods of Measuring Consistency of Soap Thickened Oils—*by D. P. Weld & M. F. Pratt* 73

Merchandising

Oil Trademarks 81
Renewal Contracts by Mail Comprise 50% of Domestic Oil Sales..... 83
The Independent Retailer is Here to Stay 89
Research Program Enables Advertiser to Place Space Effectively..... 92

Markets

Mid-Continent, Exporters Buy 7,000,000 Gallons Gasoline 101
Gulf Lubes Unchanged 102
Chicago, Weather Fails to Halt Burning Oils 103
Refinery Price Tables 104, 106,107
California, Inquiries Fail to Stimulate Business 110
Pennsylvania, Kerosene and Fuel Oil Advance 111
Eastern Domestic, Tank Car Prices Steady After T. W. Cut 112
Gulf Coast, Chinese Buyer Seeks Cargo of Kerosene 112
Wax, Small Lot Buying Boosts Prices 113
Complete Seaboard Prices 114
Tank Wagon Price Tables 116, 117
Crude Oil Prices, All Fields 119, 121
Oil Company Finance 112, 124, 126, 127

Departments

The Editors' Viewpoint 41
The Mid-Continent Skyline 44
Our Industry 48
New Patents 60
Visiting Around the Refineries 65
New Equipment 68
Changes in New Car Models 71
Foreign Opportunities 81
On The Lazy Bench 91

F. B. PARRIOTT, president of the Transcontinental Oil Co., began his oil industry experience in the fields of West Virginia, his native state.

At Pittsburgh he served as a director and executive of several companies for a period of 20 years after leaving the West Virginia fields. In 1919 the Transcontinental was formed and into it were merged some of the companies with which he had been connected. He was elected president at that time.

Mr. Parriott became a resident of Tulsa in 1925 when general offices of his company were moved to that city.

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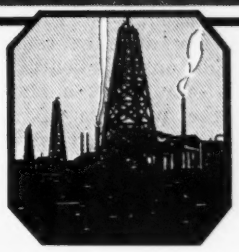

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Small Operators Contest Enforcement Of California Gas Law

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, Oct. 15

NO PROGRESS was made today towards the enforcement of the California gas conservation law at the hearing in Superior Court of Los Angeles County, when state officials sought a temporary injunction restraining operators in the Santa Fe Springs field from unreasonably wasting gas.

Today's hearing was a continuance of the proceedings initiated Sept. 20 by James S. Bennett, legal advisor for the state director of natural resources. The delay then was granted upon request of the legal advisor for the Bell View Syndicate.

This same operator, together with the attorney for the Wilshire Oil Co., entered two motions today requesting first that the hearing be continued to some later date so as to give time for additional study of law and injunction proceedings; and second that all parties at interest be included in the order drawn by the state.

The second motion would require that lessors, land owners and mortgage holders be included on the ground that, if the court should grant a temporary injunction, these parties could claim that the shutting-in of wells constituted forfeiture of a lease. Counsel for small operators claimed that all parties at interest must be present in order to get a permanent settlement, asserting that they should be protected in case the property owners failed to see the advisability of allowing their wells to be beaned in.

Legal counsel for several other operators went on record in support of either one or both motions. George F. Getty and Jamieson Petroleum Co., and Bell View Syndicate joined in support of the second motion. The Shell Oil Co. was the only major company to speak in its favor.

Mr. Bennett cited several cases in the state and federal courts that had a bearing on the present case and sought to show that all parties need not be present in order that the court may issue a temporary injunction. He relied largely on the case of the Ohio Oil Co. vs. State of Indiana which was closely followed in preparing the California Conservation Law.

L. Murphy, attorney for the Wilshire Oil Co., took the stand in support of his own company and other independents. He intimated that a long drawn out battle is in prospect, on the enforcement of the new California conservation law. He contended that the present law is beyond the police powers of the state, that reasonable waste of gas would be permissible under this law and that gas used to bring oil to the surface is being put to the utmost beneficial use. He questioned the right of the state to set any oil gas ratio for all wells in one field. He charged that the law was not intended to stop wastage of gas, but rather to effect a cut in crude oil production. He

Contest Closes Oct. 23d

THE closing date on which entries will be received in the NATIONAL PETROLEUM NEWS $500 cash prize Exposition Contest will be Oct. 23.

Entries will be passed on by the three judges and the announcement of awards of prizes carried in its Oct. 30th issue.

Many field men told their superintendents they did not have an opportunity, while in Tulsa attending the Exposition, to prepare their ideas to enter in the contest. They wanted to take time to work on their entry after their return home from their trip to the Exposition.

Entries will be accepted if mailed to the Tulsa office of NATIONAL PETROLEUM NEWS, 904 World Bldg., to reach that office by Oct. 23.

The rule on which the $500 prize money will be awarded remains unchanged: It must be a practical idea presented by a field man telling in detail how new equipment displayed at the Oil Exposition at Tulsa, or principles demonstrated there in drilling or oil producing, could be put into practical application by his company at a profit.

also claimed that a temporary injunction would be equivalent to a permanent injunction because wells once beaned back never reach former production.

Throughout the proceedings it was evident that, even though presiding Judge William Hazlett should grant a temporary injunction, the independent faction is prepared to take the matter to the highest court before giving in and that, in addition to parties heard today, numerous other independent operators are unfavorable to the new gas law and its possible effects.

There is a remote possibility that major oil companies and these antagonistic independents may come to an understanding regarding procedure under the law. A definite trend of action should be evident during the next few days as the legal battle is fought out. Indications are that the court may grant a motion necessitating the presence of all parties at interest, but that a resumed hearing tomorrow is hardly likely to result in postponing the hearing to a later date. However, from the trend of arguments at today's session it appears likely that, even when actual presentation of evidence by counsel for state and for oil companies is begun, the case will be in the courts for a matter of weeks or even months.

Fixing Gas-Oil Ratios by Law May Be Chief Issue

SAN FRANCISCO, Oct. 15

SPEAKING at a general session of the American Institute of Mining & Metallurgical Engineers on the subject, "Governmental Control of the Production and Sale of Mineral Resources," Wm. E. Colby, prominent western authority on mining law, sketched his interpretation of California's new Gas Conservation Law and expressed his opinion of the outcome of litigation now before the courts in the initial effort to enforce it:

"This act declares unlawful the unreasonable waste of natural gas, and if it appears that gas is being produced from any well in quantities exceeding a reasonable proportion with respect to the amount of oil being produced from such well, the state oil and gas supervisor is empowered to take action to compel a reasonably proportioned production, and, if necessary, to apply to the courts for an injunction to compel observance of his order.

"The act authorizes this state official to approve agreements between interested parties in any oil or gas field, having for their purpose cooperative development on a unit basis, and it also provides for the repressuring of a field through the return of natural gas into the sub-surface.

"———— Agreements contemplated by the act have been tentatively entered into between some of the larger operating companies. The success of such agreements will depend upon the cooperation of independent companies and those possessing smaller interests, who naturally are disinclined to make material sacrifices which they assert, will benefit the larger companies. The outcome is of profound importance and is being awaited with intense interest by the entire petroleum industry of the United States.

"The basic features of the act, namely, the power of the state to prevent unreasonable wastage of natural gas, is conceded to be a lawful exertion of authority. The repeated decisions of the Supreme Court of the United States on this very question have placed this matter definitely at rest.

"The California statute is a long step in the direction of bringing about unit control or, at least, cooperative action in developing gas and oil fields. It differs from previous legislation on the subject in that it goes far beyond the direct prevention of waste of gas and oil and the customary regulations providing for approved drilling of a field, such as proper spacing of wells and the shutting off of water, etc.

"It looks to the future and imposes a duty on the owners of oil and gas wells to produce only a reasonable proportion of gas to the amount of oil issuing from the same well or wells, even though the excess production of gas is utilized and not wasted in the ordinary sense. The state oil and gas supervisor is given the authority to determine in the first instance, what is an unreasonable production or waste. An appeal from his order lies to a board of commissioners; and if such orders are not complied with, the Director of the Department of Natural Resources has the power to institute proceedings in court to enjoin such production as is taking place in violation of his orders.

"A serious question arising in connection with this particular act is whether this plenary authority delegated to the state oil and gas commissioners and supervisor will be upheld. The fact that the aggrieved party has his day in court would seem to relieve the act of the objection that there has been a delegation of judicial power to administrative officers. While the feature of this legislation designed to compel the interested parties to enter into cooperative agreements may be criticized as requiring affirmative action of an intricate nature, the alternative of a complete shut-down to prevent gas wastage, would seem to furnish the answer. However, anyone who ventures to prophesy what the courts will say, so often loses any claim to be a prophet, that dogmatic prediction is dangerous. This type of legislation seems to afford the only possible basis for the solving of this vital problem, which has been testing the ingenuity of our best minds, and is in line with the highest type of conservation that looks to the future."

In discussion, Mr. Colby emphasized the fact that the police power of the State to prevent whatever may be shown to be unreasonable waste of gas, cannot be questioned in any test of the Constitutionality of the Act. The right of State officials to set arbitrary gas-oil ratios in different fields may however, be questioned, unless the production of a higher ratio of gas to oil than that prescribed can be demonstrated to be wasteful. The forthcoming test of the law, will probably center about this feature, and technical evidence tending to show that the gas-oil ratio may be taken as a measure of production efficiency will necessarily be an important factor in deciding the issue.

Proration Order Signed

(By Telegraph)

TULSA, Oct. 15.—The state corporation commission today signed an order prorating flush fields in Oklahoma. The order is to be effective Oct. 16 as requested by the operators. A short hearing was held before issuance of the order. (Details of the Oklahoma proration will be found in this issue on page 43.—Editor)

Northwest Jobbers Plan Fall Meeting

CLEVELAND, Oct. 15.—Program for the fall convention of the Northwest Petroleum Association to be held at Minneapolis on Oct. 24, was announced by Paul E. Hadlick, secretary. The meeting is to be held following luncheon in the gold room of the Radisson hotel.

E. C. Laughlin, president of the association, will open the meeting with an address after which he will introduce L. S. Westcoat, vice president of the Pure Oil Co., Chicago. Mr. Westcoat is to speak on "The Code and What it Means to the Oil Industry."

Secretary Hadlick will talk on "The Acceptance of the Code in the Northwest." The meeting will close with an address on "Eliminating Leaks" by Oscar C. Strand, a certified public accountant of Strand, Roe, Johnson Co., Minneapolis.

130,000 Attendance Breaks Record For Oil Expositions

TULSA, Oct. 12

THE International Petroleum Exposition and Congress for 1929 closed the night of Oct. 12 with a celebration which was a fitting climax to eight days of varied activities centering around the world's fair of the oil industry.

Every exhibit was kept intact until after the gates officially closed, but the last night was given over to merriment.

Records were broken at this Exposition. Precedents were established. And already plans are under way for even a larger Exposition next year.

The attendance records of former years were broken with a comfortable margin, despite the inclement weather toward the last of the show. Approximately 16,000 visitors a day was the average for the eight days—which means that the turn stiles clicked 128,000 times.

It was estimated that approximately 1000 visitors and exhibitors passed through the large entrance gate each day, but no count was kept. If that estimate is reasonably close it is safe to assume that more than 130,000 persons visited the Exposition this year. Last year's mark was right at 100,000.

Every foot of available exhibition space was taken this year. Judging from the requests already being filed with the management for reservations for the 1930 Exposition, the exhibitors were well pleased with the way the show was managed.

The Exposition made money this year. The profits, however, are going right back into the business. Plans are already under way to construct an additional building, for foreign exhibits. The management is also contemplating construction of still another building to house wholesale and retail marketing exhibits. An attempt was made this year to embrace the marketing branch of the industry, and it was sufficiently successful to convince the management that there is a place for that phase of the industry in the show.

The new auditorium proved a valuable addition to the equipment. Several meetings were held at the grounds. The marketing meeting, scheduled for the afternoon of Oct. 11 was cancelled, however, because of the general discussion of the code of marketing practices by the American Petroleum Institute committee here just prior to the opening of the Exposition. The meeting of the Independent Oil Producers Association also was cancelled.

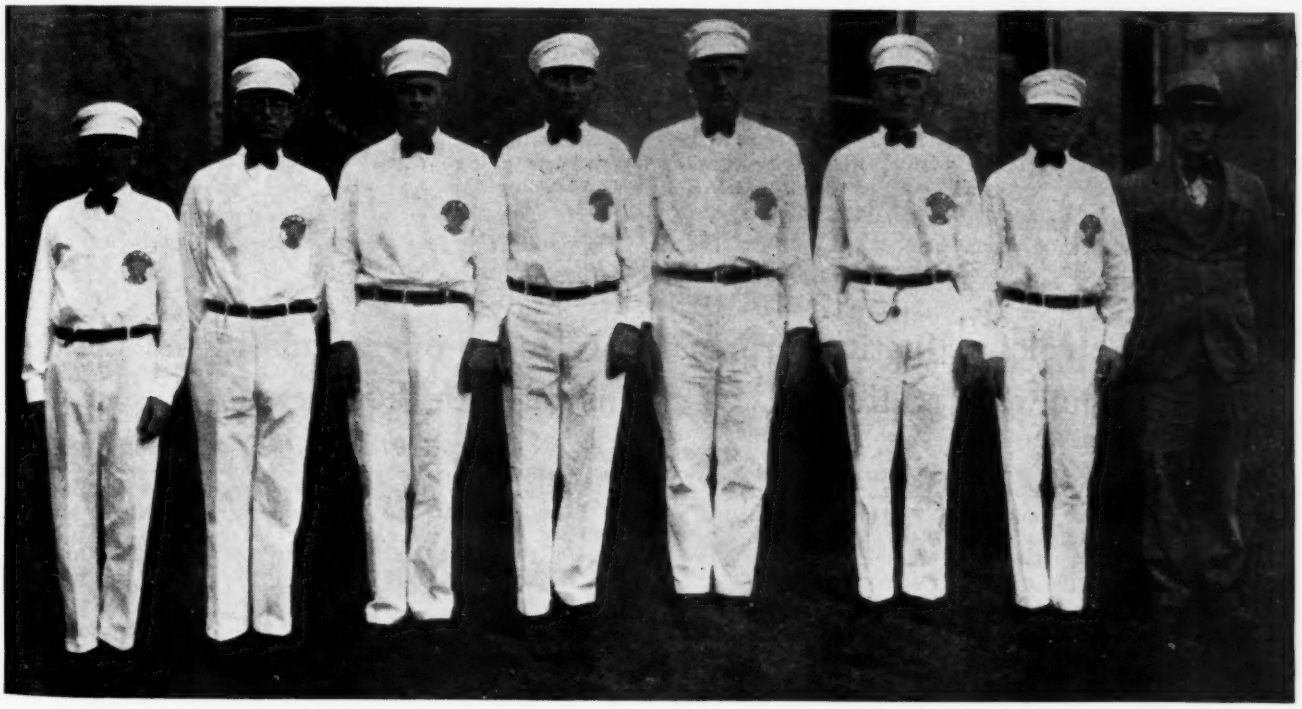
The air races proved an interesting feature of the Exposition. Seven trophies and $7600 in cash were awarded in the air events. The 50-mile closed course race Oct. 7 was won by E. Williams, with an Eagle Rock Bullet, with Harold Parker in a Cavelier second. Clarence Clark was third.

Tuesday's race was won by "Pete" Hill in a Travelair, with Ira McConnaughy in a Travelair second and Tom Park in a Lockheed third. Wednesday's race was won by William Ong with E. Williams second and William Parker third.

The 100-mile closed course race Thursday was won by R. W. Grigsby in a Spartan plane. O. B. Owen was second and "Pete" Hill third.

Army fliers kept the crowds thrilled by aerial stunts, and at night there was a bombing demonstration staged by army fliers and the anti-aircraft squadron of the Arkansas National Guards.

The annual golf tournament was won by Logan Van Zandt, of Tulsa,

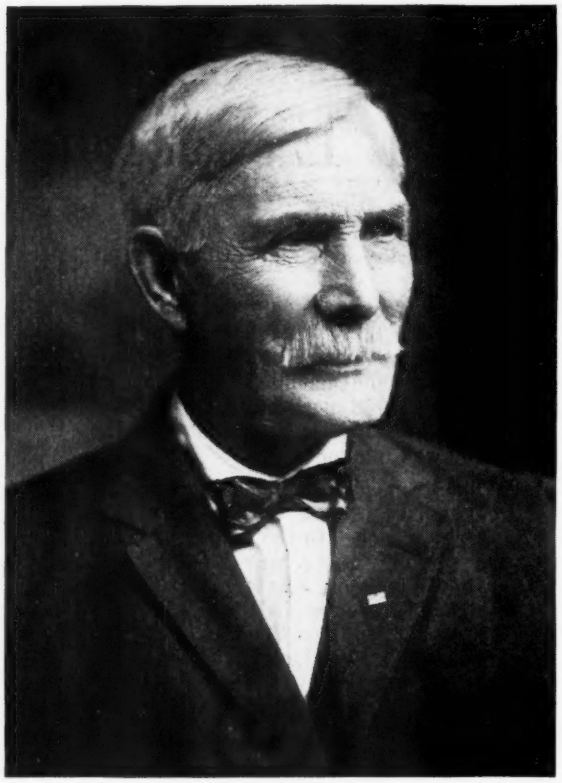


These men compose the Sinclair Oil & Gas Co. team from Healdton, Okla., which won first place in the first aid contest at the International Petroleum Exposition and Congress. From left to right, they are J. A. Nicholson, J. R. Brashears, J. L. Ashford, J. A. Robison, R. A. Gardner, L.C. Jones, J. A. Stribling and F. F. Thomasson, company trainer

who dethroned Walter Critchlow of Ardmore, the 1927 and 1928 champion.

The first aid contests Oct. 10 drew a large crowd despite the unfavorable weather. The Sinclair Oil & Gas Co. team from Healdton, Okla., won first place, with the Transcontinental Oil Co. team from Bristow taking second. Third place was won by the Phillips Petroleum Co. team from Breckenridge, Texas.

The prize offered for resuscitation by the Shaffer prone method of artificial respiration was won by the Phillips Petroleum Co. team of Borger, Texas. It will be recalled that the Texas Panhandle oil fields have presented the greatest hazard from hydrogen sulfide, and the fact that a team from this district won first prize is testimonial to the fact that the men there have become proficient in artificial respiration work. This team in the first aid contest placed ninth. The team was composed of E. Martin, E. Grunby, P. Peters, C. E. Bryon, M. Funks, P. Simpson and S. P. Kozmiezah.



John C. Looker of Bradford, Pa., retired producer, who was elected "Grand Old Man of the World" at the Old Timers' convention at the Exposition

The Sinclair team winning the first aid contest was composed of J. A. Robison, R. A. Gardner, J. L. Ashford, L. C. Jones, J. R. Breshears, J. A. Stribling, J. A. Nicholson, and F. F. Thomasson.

The Transcontinental Oil Co. team was composed of Lester Johnston, Raymond King, Lloyd Franklin, L. E. King, Russell Seaberger and Joe Yadon. The Phillips Petroleum Co. team was composed of E. Barlow, A. L. Clarke, A. G. Harvell, C. H. Sparks, J. C. Cox, P. C. Lackey and L. E. Gates.

The winners were announced at the annual safety first division banquet. Don Wallace, director of safety for the Mid-Continent Oil & Gas Association, also announced the winners of the Greater Seminole Safety Contest conducted during June, July and August. First place in the Class A Producers went to the Carter Oil Co. To be in Class A a company must have had at least 75,000 working hours a month. Class B was won by Turman Oil Co. with a perfect record.

Class A Gasoline division was won by the Indian Territory Illuminating Oil Co. with Class B award going to Skelly Oil Co., both turning in perfect scores.

The Gulf Pipeline Co. won first place in the Class A Pipeline division, and the Oklahoma Natural Gas Co. first in Class B. The Oklahoma Natural Gas Co. and Barnsdall Refineries, Inc. tied for first place in the Transportation division, each with a perfect score.

In the Construction division Carter Oil Co. was first, and also first in the Class A Contractors division. First place in Class B went to the Shooters Torpedo Co.

John C. Looker of Bradford, Pa., was chosen "Grand Old Man of the World" at the Old Timers' convention at the Exposition. Mr. Looker was born Dec. 11, 1855, near New Richmond, Pa. In 1876 he went to Tidioute, Pa., and worked as a pumper. He later acquired considerable acreage and production near Rigford, Pa. In 1925 he sold his holdings and retired. Mr. Looker succeeds Jacob Amm of New York, who held the title of Grand Old Man in 1928.

Martin Moran was chosen Tulsa's "Grand Old Man of the Industry." He succeeds "Uncle Joe" Evans, president of the Devonian Oil Co. Mr. Moran is president of the Texas Pipeline Co. of Oklahoma.

Key Boiler Equipment Co., East St. Louis, Ill., has issued a new catalog entitled "Power Plant and Oil Refinery Equipment." The catalog illustrates the wide variety of refinery fittings, tube-rolling tools, air motors, metal gaskets, joint sealing compounds, etc. Illustrations show installations of Key safety hand hole caps. The catalog is bound in loose-leaf style, with an artistic cover design. Copies may be obtained free of charge from the Key Boiler Equipment Co.

American Petroleum Institute report of refinery operations in the United States for the week ended Oct. 12, compared with the week ended Oct. 5

Districts	Per Cent of Capacity Reporting	Crude Run to Stills Wk. Ended 10-12 (Barrels)	Crude Run to Stills Wk. Ended 10-5 (Barrels)	Per Cent of Reporting Capacity Operated Wk. Ended 10-12	Per Cent of Reporting Capacity Operated Wk. Ended 10-5	Stocks Reported in Thousands of Barrels: Gasoline Stocks Oct. 12	Gasoline Stocks Oct. 5	Gas & Fuel Oil Stocks Oct. 12	Gas & Fuel Oil Stocks Oct. 5
East Coast	100.0	3,426,600	3,339,000	82.7	80.6	4,429	4,177	8,798	9,014
Appalachian	87.6	553,200	612,400	72.3	79.7	795	798	748	808
Ind.-Ill.-Ky	98.0	2,108,800	2,091,000	90.1	88.7	4,027	4,068	3,687	3,653
Okla.-Kans.-Mo	89.1	2,153,300	2,087,300	80.5	79.5	2,326	2,326	4,233	4,224
Texas	91.5	4,358,400	4,119,900	92.6	87.5	4,309	4,340	13,455	13,356
La.-Ark	97.1	1,362,000	1,389,100	73.6	75.0	1,642	1,753	5,172	5,300
Rocky Mountain	94.7	476,500	434,600	54.1	51.5	1,676	1,715	960	941
California	98.4	5,079,900	5,008,600	87.8	89.3	13,120	12,588	108,155	107,935
Total U. S.	95.4	19,518,700	19,082,000	84.3	83.3	32,324	31,765	145,208	145,231
Texas (Gulf Coast)	100.0	3,424,900	3,257,600	97.2	92.4	3,651	3,691	10,158	10,184
La. (Gulf Coast)	100.0	928,500	977,500	75.3	79.3	1,392	1,508	4,425	4,550

Herndon Heads Oklahoma Producers; Drilling Restraint Urged

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Oct. 12

C. C. HERNDON, vice-president of the Skelly Oil Co., Tulsa, was elected president of the Mid-Continent Oil & Gas Association, Kansas-Oklahoma division, at the annual meeting of the executive committee, Oct. 9. He succeeds J. C. Denton, vice-president of the Mid-Continent Petroleum Corp.

Like his predecessor, Mr. Herndon is an attorney. He assisted W. G. Skelly in the organization of the company 10 years ago and has been continuously in the position he now occupies ever since. He is an able and forceful public speaker and devotes considerable time to a number of oil and other associations. The general proration plan for Oklahoma, soon to be effective, was drafted by a committee of which he was chairman.

Mr. Herndon was first vice-president of the Mid-Continent divisional association the past year. To succeed him the executive committeemen chose E. H. Moore, president of the Independent Oil & Gas Co. The division has three other vice-presidents. A. M. Landon, independent operator, Independence, was re-elected for the Kansas district; John H. Kane, vice-president of the Phillips Petroleum Co., Bartlesville, re-elected for northern Oklahoma and Wirt Franklin, Ardmore, re-elected for southern Oklahoma. Harry H. Smith was re-elected secretary-treasurer.

There are 85 members of the executive committee, exclusive of the officers. Few changes were made this year. Paul Ache, president of the Reiter-Foster Oil Corp., succeeded Charles W. Grimes, independent operator; A. M. McCorkle, of the Dixie Oil Co., was elected to fill the vacancy caused by resignation of C. C. Harmon, Nowata, Okla.; E. R. Filley, Mid-Continent manager of The Texas Co., succeeded D. F. McMahon, independent operator. T. C. Johnson, of Wichita, was added to the committee.

In a resolution the division called attention to the heavy accumulation of oil in storage this year, saying it promises to be the greatest in any year since 1923.

"In view of these fundamental facts," said the resolution, "we again urge the producers to limit their drilling activity to absolute essentials and to avoid the drilling of any well, wildcat or otherwise, which is not absolutely necessary on account of lease expirations or other contract demands. The policy of restriction of drilling should be put into immediate effect and adhered to scrupulously for at least six months, or until April 1, 1930. In the case of any areas which must be drilled to avoid termination or lapse of leases, we urge that every possible effort be made to unitize or cooperatively develop the area, as distinguished from highly competitive drilling which brings on uncontrolled floods of unnecessary oil.

C. C. Herndon

"We respectfully submit to the industry that, for a number of years to come, this business must be conducted in a manner which will permit the withdrawal of oil from reserves only as there is a demand for same. . . . Land departments should be instructed not to purchase spreads of acreage around new development projects, nor to make contracts looking to the early drilling of wells."

The annual dinner of the association was attended by 400 members and visitors. An outstanding address was that by Harry H. Rogers, president of the Exchange National Bank, of Tulsa, and an oil operator of many years' experience. Introduced by Toastmaster E. H. Moore, president of the Independent Oil & Gas Co. as the man "all of us producers have to see at one time or another." Mr. Rogers praised the Mid-Continent operators for the constructive work they have done in recent weeks toward the balancing of production with demand for crude oil. As a banker, he said he was quite in sympathy with the efforts and that such sympathy had been shown in a practical way by the bank which he heads in some instances where renewal of loans to smaller operators was vital to the success of proration agreements.

Approval of the state-wide proration plan shortly to go into effect was voiced by Governor W. J. Holloway.

Homer S. Fox, trade representative in London of the U. S. Bureau of Foreign and Domestic Commerce, gave the meeting a view of the petroleum situation in Great Britain. Reviewing the industrial progress there, he said that, with the upward trend in business, oil consumption in Great Britain may reasonably be expected to increase.

"Total indicated domestic consumption of liquid petroleum products in Great Britain and Northern Ireland in 1928 was approximately 50 million barrels, equivalent to a little over four per cent of the total world production of crude petroleum in that year," said Mr. Fox. Some six million barrels of bunker fuel oil were also supplied at British ports to vessels engaged in foreign trade, as compared with 50 million barrels supplied at United States ports.

"Consumption of gasoline has risen steadily from 2,937,648 barrels in 1913 to 24,270,568 barrels in 1928, according to figures compiled by the leading petroleum companies. Consumption figures for other products are not available for any later year than 1926, when Board of Trade figures showed approximately 4,648,857 barrels of kerosene, 2,785,714 barrels of gas oil and 2,309,524 barrels of lubricating oil used within the country. Consumption of gasoline is naturally increasing more rapidly than that of other products, as the number of automobiles and airplanes grows, but the total consumption of all products shows a substantial annual increase, on the average, and the United States should continue to share in

this growth, if her own sources of supply remain adequate."

Expressing his faith that the California gas wastage law will have the effect ardently desired by its sponsors, Edward Higgins, managing director of the California Oil & Gas Association, likened the situation there to a drama where all is known to the audience except what is behind the stage.

"California's leading oil operators well realize the calamitous results that must follow the failure of the law to function properly," said Mr. Higgins. "They have waged a long-drawn-out battle against overproduction and, while offering no guarantee of complete victory, they are hopeful of a large measure of success. Having faith in the good judgment of these men, it is my belief that our drama will have a happy ending—an ending that will be satisfactory to both actors and audience alike, an ending that will be of benefit to the oil industry."

The meeting was attended by several of the foreign delegates to the Petroleum Exposition. They were presented to the audience by John A. Silsbee, petroleum engineer, Tulsa.

Ethics Code, Oil Tariff on Program Of I. O. M. A. Congress

CHICAGO, Oct. 12

DISCUSSION of the Code of Marketing Practices and of a tariff on crude oil, will be two of the main topics at the coming convention of the Independent Oil Men of America at the Stevens Hotel, Chicago on Oct. 21, 22 and 23.

L. S. Wescoat, vice-president of the Pure Oil Co., Chicago will lead the code discussion and Wirt Franklin of the Wirt Franklin Pet. Corp., Ardmore, Okla. will speak on the tariff.

Other subjects will be a talk on modern business by Floyd A. Allen, vice-president, General Motors Corp. and a survey of the "Red Hat vs. Red Crown" controversy by H. B. Floyd, attorney for I.O.M.A.

Another contest of five minute speeches will be held this year. Competition is open to anyone. The winner will be awarded the trophy for one year which is donated by Col. Hilpp, president of I.O.M.A.

C. Y. Hinchey, executive manager, reports receiving an unusually large number of letters from non-members inquiring about the coming convention and expressing their intention of being present. In addition to the business meetings, a large number of prizes will be awarded and plenty of entertainment will be furnished.

Following is a list of exhibitors at the Marketing Congress, as of Oct. 11:

Amco Sales Corp., Chicago, room 512.

Battenfeld Grease & Oil Co., Kansas City, room 504.

Bodie-Hoover Petroleum Corp., Chicago, room 557A.

Calumet Refining Co., Chicago, room 507.

Consistometer Corp., Chicago, room 505.

Gillinder & Sons, Inc., Philadelphia, room 537A.

Globe Machinery & Supply Co., Des Moines, room 513.

Globe Superior Corp., Abingdon, Ill., room 504A.

Graver Corp., East Chicago, room 556.

Klenzmotor Corp., Fort Wayne, room 561.

Milwaukee Tank Works, Milwaukee, room 556A.

Motolax Corp., Chicago, room 536.

National Sign Corp., Kokomo, Ind., room 509.

Northland Oil Co., Chicago and St. Paul, room 557.

Nubian Paint & Varnish Co., Chicago, room 505A.

Palm Bros. Decalcomania Co., Chicago, room 513A.

Pittsburgh Equitable Meter Co., Pittsburgh, room 517A.

Progress Sign Co., Cincinnati, room 502A.

Romort Mfg. Co., Oakfield, Wis., room 560A.

Shaffer Oil & Refining Co., Chicago, room 534.

St. Louis Can Co., St. Louis, room 502.

A. J. Stevens Grease & Oil Co., Kansas City, room 560.

Warner Mfg. Co., Minneapolis, room 512A.

B. H. Wilson & Co., Chicago, room 533A.

Wolverine Porcelain Enameling Co., Detroit, room 509A.

New Light Gravity Field In East Texas

HOUSTON, Oct. 14.—Another east Texas light gravity oil field has been definitely proved for "gusher" production after the Pure Oil Co. Oct. 14 tested its No. 1, W. T. Jarman, 12 miles south of Grand Saline in Van Zandt County.

The well made 149 barrels of 37 gravity oil the first hour and gauged 130 barrels the second hour. Company estimates credited it with 3500 barrels daily. Total depth is 2710 feet in sand believed to be the Woodbine.

The Pure had been credited with discovery of an entirely new field for more than two weeks after a drill stem test had shown considerable quantities of oil in the sand. More than 65 per cent of the last hundred feet drilled was sand. Two shale breaks of 15 and 19 feet made up the other 35 per cent of formation.

Shell Petroleum Corp. owns an offset lease east of the Pure well and the Sun and Texas companies each own a lease within a mile of the discovery. Scattered leaseholds are held by these and other companies inside the Pure's block of 17,000 acres, but they are farther away.

Northeast of the Pure's block, the Humble Oil & Refining Co. owns 10,000 acres of leaseholds.

Drilling of the Pure's test was preceded by core testing to the Nacatoch sand, which was said to have shown shallow oil.

Trading has been largely confined to royalty sales, as close in acreage had been taken up too long ago by major companies to leave leaseholds available. Leasing is going ahead, however, in the trend from southeast Henderson County to the northeast corner of Wood County.

Second Deep Pay Well In at Big Lake

HOUSTON, Oct. 13.—The second deep pay well in the Big Lake field of Reagan county, West Texas, is spraying oil and making heavy gas at total depth of 8377 feet while in an incomplete stage. It is the No. 131 University of the Big Lake Oil Co., subsidiary of Plymouth Oil Co., located about 1300 feet southwest of the Texon Oil & Land Co.'s deepest producing well in the same field.

Texon's B-1 University, the world's deepest producing well, set a new peak production of 2892 barrels of 57 A.P.I. gravity oil early in October.

NEW YORK—Approximately 7000 separate oil companies, partnerships and individual oil producers report production and runs through pipe lines to the U. S. Bureau of Mines.

Pure Oil to Market Gyro Process Gasoline at 4c Premium

CHICAGO, Oct. 14

PURE OIL CO. will begin marketing on Wednesday throughout its territory Purol-Pep, an anti-knock high test motor fuel produced by the Gyro vapor phase cracking process. An hour's radio program, Tuesday evening, 300 full page newspaper advertisements on Wednesday followed by a minimum campaign of three months, and 1000 painted billboards will be used to introduce the new motor fuel.

Purol-Pep will sell at a 4 cent premium. It will be colored a light shade of blue. Refineries equipped to produce the fuel are Marcus Hook, Pa.; Cabin Creek, W. Va.; Heath, Ohio, Smiths Bluff, Texas; and Muskogee, Okla.

The product has been marketed in limited territories for the past two years. The Wofford Oil Co. has been marketing it for two years as Woco-Pep in Mississippi, Alabama, Georgia, Florida, Virginia, and North and South Carolina. Known as Gyro it has been sold in Cleveland, O. by the Pocahontas Oil Co. and in northwestern Ohio along Lake Erie into Detroit by the Hickok Producing Co. since the first of the year.

Purol-Pep will be marketed at once through Pure's territory comprising the Atlantic seaboard and the middle west. Some sections, such as North and South Dakotas, western Iowa and some adjacent territory, will be taken in as soon as there is sufficient refinery capacity to cover the demand.

For the radio announcement Tuesday night the blue chain facilities from radio station WJZ, with the southeastern and northwestern stations on the National Broadcasting Co. network will be used. In addition to the regular radio feature of Goldman's Pure Oil band from New York additional stars in the broadcast will be Al Jolson, Bebe Daniels, Ann Pennington, and the RKO picture orchestra from California re-broadcast from New York. Nineteen radio stations will carry the program.

On Wednesday 300 full page newspaper advertisements will be used. The newspaper schedule calls for another advertisement this week, followed by insertions depending on the demand for Purol-Pep. A minimum newspaper campaign of three months has been laid out. A 1000 painted billboards will be used.

Detonox, Pure Oil's present premium motor fuel, will be continued on the market. The premium will be reduced from 3 to 2 cents.

CHICAGO, Oct. 14.—Tiolene, Pure Oil Co.'s Pennsylvania motor oil, has been advanced to 35 cents a quart. The price, prior to Oct. 1 was 30 cents.

Increased demand from the public for Tiolene, plus increased costs of bright stocks in the Pennsylvania refinery market, caused the advance.

NEW YORK—Bonuses paid on all leases in the Osage Indian reservation alone have totaled over 16 years $108,000,000, while royalty payments on oil, gas and gasoline have netted the Indians in 27 years $113,000,000, according to the American Petroleum Institute.

NEW YORK—Oil lands of this country comprise more than 25,000,000 acres, according to the American Petroleum Institute.

The Federal Oil Conservation Board estimates producing and proven areas in excess of 3,000,000 acres, while the Federal Trade Commission says that there are more than 22,000,000 acres of unproven oil lands.

New York Tank Wagon Drivers Go Out on Strike

CLEVELAND, Oct. 14

NINETY per cent of the motor equipment of major oil companies in New York was moving Monday, and the strike was expected to end in 48 hours with the union not obtaining its demands.

This was the latest report on the truck drivers' strike in New York city called on Oct. 11 by Local No. 553 of the International Brotherhood of Teamsters, Chauffeurs, Stablemen and Helpers, and involving about 3000 drivers of trucks operated by major oil distributors.

Deliveries to hospitals, fire departments, and other public places were not hampered. Policemen and private guards were on trucks making deliveries in the city. Violence was confined to brawls where non-union drivers were operating trucks, or to the throwing of bricks at trucks, it was said.

The strike started at the Pratt station of the Standard Oil Co. of New York in Brooklyn Oct. 5, the men demanding an eight-hour day and a raise in pay to $47.50 weekly. A wage of $35 a week for a 10-hour day had been paid. By Oct. 11 drivers of the major distributors in the metropolitan area were striking. Smaller distributors were reported to have signed with the union granting the demands.

A general strike of 25,000 truck drivers in the city has been considered, and union officials are to determine this action at a meeting Tuesday, it is said. The drivers, most of them under contract, would strike on the grounds that their trucks were operated on gasoline handled by oil companies not recognizing the union, hence the contracts would be void.

Standard Oil Co. officials reported that about 80 per cent of their drivers were forced to join the union through threats and intimidation. The drivers were unionized suddenly, and the strike followed that of the fresh fruit and vegetable truck drivers two weeks ago.

New York is the second major city to have an oil truck driver's strike. In 1927 there was a strike of truck drivers and station attendants in Chicago. A strike was called on July 8, 1927, against the Sinclair Refining Co. Major distributors immediately closed their stations, ordered trucks off the streets, and stopped incoming tank car shipments, for fear of violence.

The Chicago strike was settled on Sunday, July 9. Drivers were granted an increase of $7.50 a month, half of the demand, and lost the demand for a week's vacation with pay. Station attendants also got half of their increased pay demand accepting $5 a month.

New Film Depicts Refining

NEW YORK, Oct. 15.—Another educational motion picture of oil has been prepared by the U. S. Bureau of Mines in cooperation with one of the large refiners. The new four-reel film is entitled "Refining the Crudes," according to the American Petroleum Institute.

Views of a modern oil refinery, a "petroleum tree" where animated photography is used to chart the more than 400 products obtained from refining processes, various scenes to visualize the dependence of the world on refined oil products, and the processes by which crude petroleum is converted into these processes, are shown in the film.

The film may be obtained for exhibition from the Pittsburgh Experiment Station, U. S. Bureau of Mines, Pittsburgh, Pa. The exhibitor pays only the transportation charges.

Review of Late Production News

DECLINING production in several major pools the past week brought a decrease in the country's daily average output of 48,850 barrels, to 2,838,100 barrels, according to the American Petroleum Institute.

Crude oil imports also declined, being at the rate of 253,000 barrels the week ended Oct. 12, a decrease of 108,286 barrels from the previous week. Total new crude supply was 3,091,100 barrels, compared with total new supply of 3,248,336 barrels the previous week.

Production in Oklahoma fell off 9100 barrels and in California 13,800 barrels.

Sedgwick county in Kansas showed the largest decline, output there falling 12,250 barrels on daily average. Santa Fe Spring declined 10,000 barrels, and Gray county, Texas Panhandle, fell off 9650 barrels.

Other more important changes the past week were: Earlsboro, decline of 2600 barrels; St. Louis, 2350 barrels; Caddo light, 2550 barrels; and Pierce Junction, 2000 barrels.

Pecos county increased 7750 barrels and Humble field increased 5300 barrels on daily average.

California

ON THE south dome of Kettleman Hills the Ohio Oil Co.'s No. 1 Smith is disappointing thus far. At 7000 feet the well is producing 15,000 barrels per day of hot water.

There is some thought among engineers that the producing formation may have been mudded off by the drillers in their anxiety to avoid a blow-out. The company is reported preparing to drill deeper.

In the Potero district Getty's well which came in for 2000 barrels last week now is down to 200 barrels per day.

Output of Clarke zone wells in Santa Fe Springs declined last week. The decline is thought to be temporary.

Texas, New Mexico, Louisiana

FIELD disappointments in the Girvin area of Pecos county discounted any immediately spectacular developments in West Texas to result from wildcatting operations. Tests to the south of the Rowan & Tong discovery, in which Independent Oil & Gas Co., bought an operating half interest, failed to get production at the level of the original well. Five miles south, in the Taylor-Link (University) area, the shallow horizon at 970-1000 feet continued to be erratic. Wells in both areas at the 1600 foot level now make 200 to 250 barrels daily at their maximum, notwithstanding high flush showings in some of them at first.

Current production in this country by pools is found on page 97.

Aside from occasional new locations in the Hobbs area, activity is quiet in the Lea county, New Mexico, division of the Permian salt basin region.

Louisiana operations throughout the week were of strictly local significance.

Oklahoma-Kansas

AS WAS expected the Oklahoma City pool fell short of its peak when it was opened to full production Saturday. In the 24-hour period that ensued it produced 63,588 barrels, falling short of its peak by about 3000. Thirteen wells made this total. For the next 24 hours the field produced 61,000 barrels from eleven wells.

Oklahoma fields that are flush or semi-flush were due to go under proration October 16. Because Oklahoma City will be produced to capacity the rest of this month no decline from the present level of production is expected.

Principal field development of the past week was in Kansas where a McPherson County well produced 1000 barrels daily from the Wilcox sand. The new area has been shut in for 30 days.

Wyoming, Montana

TWO important wells were drilled in Montana last week; one was at Bear's Den, and one at Cut Bank which is about fourteen miles west of the Kevin-Sunburst field. The Carroll brothers got a 40-barrel well on their holdings east of the Cat Creek field proper.

Kinney-Coastal Oil company's well blew in producing 30 million cubic feet of gas at old Pilot Butte shallow field, Fremont county, Wyoming. One man was killed and the derrick was ruined. This was a deep test, and intended for lower horizons. The well is bottomed, it is presumed, in the Dakota.

There were no developments of particular interest in Colorado during the week. In New Mexico the activities in Lea county increase. So far the Midwest Refining company's discovery on the Hobbs High structure is the largest oil producer, being good for 1250 barrels flush production.

Ector Well Opening West Texas Field

HOUSTON, Oct. 12.—Ector county's first commercial oil production is in the making, resulting from discovery of a new West Texas field, fourteen miles west of Odessa, by the Penn Oil Co., and the Humble Oil & Refining Co., on Kloh, Rumsey & Abrams acreage, Sec. 7, Texas & Pacific block 44, township 3 south.

At total depth of 3742 feet, the well has been making 15 to 20 minutes heads of oil intermittently throughout the week. Some of these heads have amounted to as much as 80 barrels in 20 minutes. Last reports showed the well drilling in gray lime with no indication of water.

The test is about two miles north of east of earlier Ector wells drilled by J. S. Cosden and others, which were good initial production of 10 to 20 barrels daily. Cosden wells and acreage were later transferred to The Texas Co., in a deal whereby the last mentioned acquired an operating half interest about two years ago.

$218,000,000 of Oil and Gas Financing Announced in Week

CLEVELAND, Oct. 12

FINANCING or intended financing announced by oil and gas companies this week amounted to approximately $218,000,000.

The actual financing was an issue of $100,000,000 of 15-year 5 per cent convertible sinking fund gold debentures by The Texas Corp. to provide for expansion. The nature of the expansion could not be revealed, it was said at The Texas Corp.'s headquarters in New York but all recent expansion of the corporation's subsidiaries had been paid for with previous financing, mostly an increase in the capital stock.

The offering price was 98½ to yield 5⅛ per cent.

The Cities Service Co., engaged in the public utilities field as well as the oil and gas industry, offered common stockholders the right to subscribe for one no par common stock for each 10 held of record Nov. 7.

The price is to be $45 a share, or about $20 a share less than recent market price of Cities Service common. This new issue of 2,227,005.4 shares covering issued common will bring the company $100,005,000 and another $10,000,000 is expected to come from holders of stock purchase warrants which are attached to the company's debentures. These warrants would have to be exercised by Nov. 7.

Lone Star Gas Corp. announced contemplated changing of its capital structure to include 100,000 shares of 6½ per cent preferred stock of which 80,000 shares or $8,000,000 par will presently be issued to acquire certain public utilities companies. The proposal to authorize the preferred stock will be voted on by stockholders at a special meeting Oct. 31 in Pittsburgh.

It was announced that the proceeds from the sale of stock would be used for new construction work, additions to subsidiaries' property, and other corporate purposes. The company has recently been expanding its activities in all branches of the oil and gas industry.

Each debenture of The Texas Corp.'s issue will be convertible at par into the common stock of the corporation at the following prices: $70 a share to and including Oct. 1, 1930; $75 a share to and including Oct. 1, 1931; $80 a share to and including Oct. 1, 1934; $100 a share to and including Oct. 1, 1939 and $125 a share thereafter until maturity. In case of debentures called for redemption conversion privilege will expire 10 days previous to redemption.

At the corporation's headquarters in New York, it was said no announcement could now be made other than that contained in a letter from R. C. Holmes, president, to the underwriting syndicate. Extracts from that letter follow:

"The Texas Corp., through its subsidiaries, is engaged in all branches of the oil industry including the production, transportation, refining and distribution. Its products are marketed throughout the United States and in many foreign countries. The trademark 'Texaco' is one of the most widely known in the petroleum industry.

"Through its subsidiaries the corporation owns or controls 6,431,151 acres of oil lands from which an average daily gross production of 147,000 barrels of crude oil is being obtained; 6505 miles of pipe lines; 17 strategically located refineries having a daily crude charging capacity of 203,000 barrels; 6863 tank cars; 30 vessels of 170,497 gross tonnage; 17 ocean terminals; and steel tank storage completed and under construction exceeding 87,000 barrels.

"The marketing organization in the United States includes about 40,000 distributing outlets. Also it distributes as does no other oil company, in every state in the Union. Bulk terminals, warehouses and other sales facilities are maintained throughout the world.

"The proceeds from the sale of these debentures will provide funds for the further expansion of the corporation's activities by providing additions and betterments to the producing, transportation, refining and distributing facilities of its subsidiaries, and for other corporate purposes.

"The following statement shows the Funded Debt of The Texas Corp. and subsidiaries and the capital stock of The Texas Corp. outstanding in the hands of the public, as of Aug. 31, 1928, after giving effect to the issuance of these debentures:

Funded Debt:	
The Texas Corporation:	
Convertible Sinking Fund 5% Debentures, due Oct. 1, 1944	$100,000,000
California Petroleum Corporation:	
Convertible Sinking Fund 5½% debentures due Nov. 1, 1938	10,200,000
Convertible Sinking Fund 5% debentures, due Feb. 1, 1939	7,000,000
Common Capital Stock (Par $25)	246,204,900

"There were also outstanding as of Aug. 31, 1929, purchase obligations in the amount of $6,059,813.19; assumed mortgage bonds of the Louisiana Land & Exploration Co. in the amount of $1,210,000 and capital stocks of subsidiaries having a book value of $462,299.54.

"Consolidated earnings of The Texas Corp. and subsidiaries (including California Petroleum Corp.) available for interest on funded debt after all charges except Federal Income taxes were as follows:

1924	$28,086,264
1925	44,122,338
1926	40,793,331
1927	22,065,734
1928	50,962,013
1929 (8 months	39,619,203
Annual average	39,820,391
Maximum Annual Interest Charges on Consolidated Funded Debt of the Corporation and its Subsidiaries to be Outstanding after Issuance of these Debentures	5,911,000

"Average annual earnings as shown above were more than 6.7 times such interest charges, and earnings for the first eight months of 1929 were at the annual rate of 10 times such charges.

"The earnings shown above do not include any income from the proceeds of these $100,000,000 debentures.

"The common capital stock of the Corporation representing the equity junior to the funded debt, has an indicated market value at present quotations of more than $600,000,000."

The underwriting syndicate consisted of the Continental Illinois Co. of Chicago; Chase Securities Corp.; Guaranty Co. of New York; Bankers Co. of New York; National City Co.; Harris Trust & Savings Bank; Halset, Stuart & Co.; First Union Trust & Savings Bank; Field, Glore & Co.; H. M. Byllesby & Co., and Mitchell, Hutchins & Co.

CLEVELAND—The United States is estimated to have furnished 58 per cent of the gasoline consumed in Chile in the first six months of 1929. Estimated imports for Chile in this period are 319,057 barrels. An article on gasoline and kerosene trade in Chile is published in the Oct. 14 issue of Commerce Reports, issued by the Department of Commerce.

CLEVELAND—Burmah Oil Co., Ltd., has declared an interim dividend of 2 shillings, less tax, payable Nov. 8, according to the Wall Street Journal.

Refiner Shows Automobile Engineers How Oils Are Made and Tested

By Paul Truesdell
N. P. N. STAFF WRITER

ELIZABETH, N. J., Oct. 14

REFINERY technologists and men who design and build motor cars got together here today to talk things over from their respective standpoints.

The Standard Oil Co. of New Jersey was host to nearly 300 members of the Society of Automotive Engineers.

The automobile engineers were shown what the Standard of New Jersey is doing in its laboratory and with refinery equipment at the Bayway plant to improve the quality of motor fuels and lubricants it produces, and to meet more closely the changing needs brought about by improvements in automobile design and manufacture.

Three papers were presented at the two sessions of the meeting. Two were by Standard of New Jersey technologists and the third by a technologist of the Ethyl Gasoline Corp. The first paper described some of the methods of testing used by the Standard; the second dealt with the progress that has been made in determination of knock rating of fuels and the third discussed gum in gasoline and methods of testing to determine its effect on the automobile engine.

A blanket invitation to attend had been sent out to members of the Society of Automotive Engineers. Most who accepted were from the Pennsylvania and New York metropolitan sections and from Detroit. They began to gather in the forenoon at the offices of the Standard Oil Development Co. in the Bayway refinery.

At noon the visitors were taken in buses and private cars of the Standard technologists to the Winfield Scott hotel in Elizabeth for luncheon. Then Dr. A. E. Becker of the Standard presented a paper prepared by himself and W. C. Bauer, entitled, "Laboratory Testing of Motor Lubricants and Gasoline Under Summer and Winter Conditions."

This paper served to introduce the visitors to some of the equipment and some of the testing methods they were to see in the laboratories during the afternoon tour of inspection.

Concerning lubrication of transmissions and differentials, Dr. Becker made this statement:

"The summer gear lubricant must lubricate ball, roller and plain bearings; must cushion the gears and maintain quiet operation; must have sufficient drag to slow down the clutch and permit easy shifting and must not be so fluid that leakage will occur past shaft packings. The same oil is expected to do all these things also at zero, F., since nobody changes his transmission oil seasonally any more."

Dr. Becker described the chassis test room in the laboratory, where road driving conditions can be perfectly simulated for testing fuels and oils in service. This is a cork-insulated room large enough to take in the largest bus or truck chassis. Chassis rolls are connected to an external dynamometer. These rolls will accommodate the smallest as well as the largest of present day cars.

Temperatures can be controlled from 35 degrees below to 130 degrees above zero, F. The car under test can be driven at every speed from the lowest that will maintain engine operation up to 80 miles an hour. In other words, according to Dr. Becker, "the road is brought into the laboratory and weather conditions made to suit the test desired.

"Observations and data are easy to obtain, the data can be analyzed, checked and re-checked when necessary. The car can be tested with the products made for its operation, just as the owner uses it."

THE automotive engineers also were shown a smaller insulated room where individual parts of automobiles can be separately tested under the same wide range of temperatures. "Engines can be tested for cold starting with different fuels," Dr. Becker stated. "The torque necessary to turn the engine over with different oils can be determined at low temperatures and the ability of the same oils to provide efficient lubrication at high temperatures can be studied.

"Effect of temperature and humidity upon power delivery can also be measured. The efficiency of transmissions when using various lubricants at different operating temperatures can be ascertained. Tests with oil pumps, starters and other units can be made just as easily."

Other features of the inspection trip included visits to the knock testing laboratory, where improvements in the method of testing knock-rating have been developed and to the experimental cracking laboratory where results can be obtained over a wide range of operating conditions such as pressure and temperature in such form they can be translated into terms of commercial plant operations.

A bath of molten lead is used for heating the oil in the experimental cracking stills so as to make possible very close temperature control. Heating with molten lead has been proposed at various times as a method for commercial operation but has never been much used.

ONE laboratory is provided with a large number of heaters, fractionating columns, vacuum stills and so on for testing and analyzing the various crudes that come to the refinery to determine how they may best be handled in the plant and what products can most advantageously be made from them.

A grease testing machine consisting of a set of gears running in an atmosphere of nitrogen was one of the interesting pieces of apparatus. By excluding air from the gear box it is possible to determine how gear lubricants will perform when not exposed to oxidation.

The actual refinery equipment, stills, cracking coils and so forth were viewed from a distance and the tour of inspection of the plant wound up with a visit to the buildings where Flit, Nujol, Misto and some of the company's other special products are made and packaged.

The visitors were taken back to the hotel for dinner and the other two papers on the program followed the dinner. One was on developments in knock testing of fuels and a description of engines that have been standardized for the purpose. Earl Bartholomew, director of the Detroit laboratory of the Ethyl Gasoline Corp. was the author.

The other paper was on "Gum in Gasoline," by E. B. Hunn, H. M. G. Fischer and A. J. Blackwood of the Standard Oil Development Co., presented by Mr. Hunn. The conclusions, which the authors said were the results of the work of various other investigators as well as themselves during the past three years, were stated as follows:

"1—Cracked gasoline as it comes

from the stills is free from actual gum. Usually, however, it contains certain unstable hydrocarbons which will form gum during storage.

"2—Gum formation from these unstable constituents in cracked gasoline is essentially an oxidation process, the gum containing a high percentage of combined oxygen. Also, it has been shown conclusively that gum will not be formed in the entire absence of oxygen.

"3—The gum formed by oxidation during storage remains dissolved in the gasoline (except in extreme cases). It is the amount of this dissolved or preformed gum which chiefly concerns us with respect to engine operation. This dissolved gum is sprayed from the carburetor with the gasoline and deposits on the heated portions of the intake manifold and on the intake valves.

"Imperfect engine operation and loss of power may result either from a partial clogging of the manifold or delayed seating of the intake valves. In severe cases engine failure may be caused by complete sticking of an inlet valve. No other deleterious effects on the engine except the above have been noted. Only a fraction of the dissolved gum in the gasoline is deposited in the intake system, the percentage of the total depending on the design and operating conditions of the engine. The undeposited gum is carried into the combustion chamber and burned with the charge.

"4—The dissolved or preformed gum is the only criterion with respect to the gasoline which determines the amount of deposit that will be formed in the intake system. Unstable constituents (potential gum) in the gasoline are not transformed perceptibly into gum deposits during the passage of the air-fuel mixture through the manifold. Hence a very unstable gasoline, one that would contain a prohibitive gum content after storage would give satisfactory engine operation if consumed immediately after manufacture.

"5—At present there are no authentic data from which the permissible dissolved gum content for satisfactory engine operation may be defined. Our tests with a Buick car indicated that a 10-milligram content per 100 cubic centimeters of gasoline is safe, whereas a 25-milligram gum content gave definite signs of trouble in 5000 miles' operation. Obviously, the correct answer to this question depends on reliable data from many more tests on various makes of engines operating under normal conditions.

"6—A gasoline which is to be marketed must be sufficiently stable toward oxidation to contain not more than the permissible dissolved gum at the time of consumption. Since the intervening storage period is very indefinite an adequate safety factor must be allowed to insure the product being satisfactory to the consumer, even after the most severe oxidizing conditions to which it will be subjected during storage."

Progress in Knock Testing

By Earl Bartholomew*

(*Presented Oct. 9 before S.A.E. Meeting, Standard Oil Co. of New Jersey plant, Elizabeth, N. J.*)

BY CONTINUOUS development extending over a period of several years, apparatus for measuring the anti-knock value of internal combustion engine fuels has been refined to a point where at least some of the designs evolved give reproducible results but the agreement of ratings obtained on test engines with the actual performance of fuels in automobile and airplane engines is perhaps not as well understood as the technique of obtaining the ratings on laboratory apparatus.

Needless to say, the purpose of measuring the relative anti-knock value of fuels is to determine their relative performance in the engines which are destined to burn them and, regardless of the precision and consistency with which fuels may be rated on laboratory apparatus, the ratings are meaningless unless they agree with the anti-knock behavior of the fuels when used by the public.

It is my desire to show that the failure of various types of laboratory apparatus to give the same anti-knock rating on a given fuel does not necessarily indicate that the rating obtained on one machine is correct and the ratings on other machines incorrect but that each rating, if the apparatus is well designed, represents a true evaluation of the fuel for the test conditions established. The problem, then, is to determine the test conditions which should be set up.

DUE to its length the accompanying paper by Mr. Bartholomew is being published in two parts. The second part will appear in the Oct. 23 issue of NATIONAL PETROLEUM NEWS.

History of Knock Measurement Apparatus

It is almost impossible to understand the present tendencies in the design of knock measuring apparatus and their practical significance without reviewing the history of apparatus and technique.

Until recently the chief concern of fuel testing laboratories was to obtain knock testing apparatus which gave consistent and reproducible results but now, following the development of improved apparatus, more attention can be given to the correlation of laboratory and road tests.

When anti-knock fuels first received recognition some years ago, an immediate need was created for some type of measuring stick to evaluate their relative merit. In the absence of experience and the large number of data now available, it was only natural that the development of apparatus for the purpose should begin with engines which were most readily available.

The early work of the General Motors Corp. and the Ethyl Gasoline Corp. was done on slightly altered Delco lighting plants, the newly developed Midgley bouncing pin apparatus serving as the indicator of detonation. In England a variable compression engine found favor and attention was devoted to the determination of the so-called highest useful compression ratio of fuels.

Certain laboratories in this country mounted a single cylinder from a Liberty engine on a suitable crankcase and rated fuels in various manners. Still other laboratories improvised single and multi-cylinder testing units from available commercial engines.

Since the engine conditions which have a bearing on the intensity of detonation produced in a given engine by a given fuel were not too well known at this time, no great amount of attention was given to maintaining constant engine conditions. As a result, speeds from 400 to 2000 revolutions per minute were in common use, cooling medium temperatures were

*Director, Detroit laboratories, Ethyl Gasoline Corp.

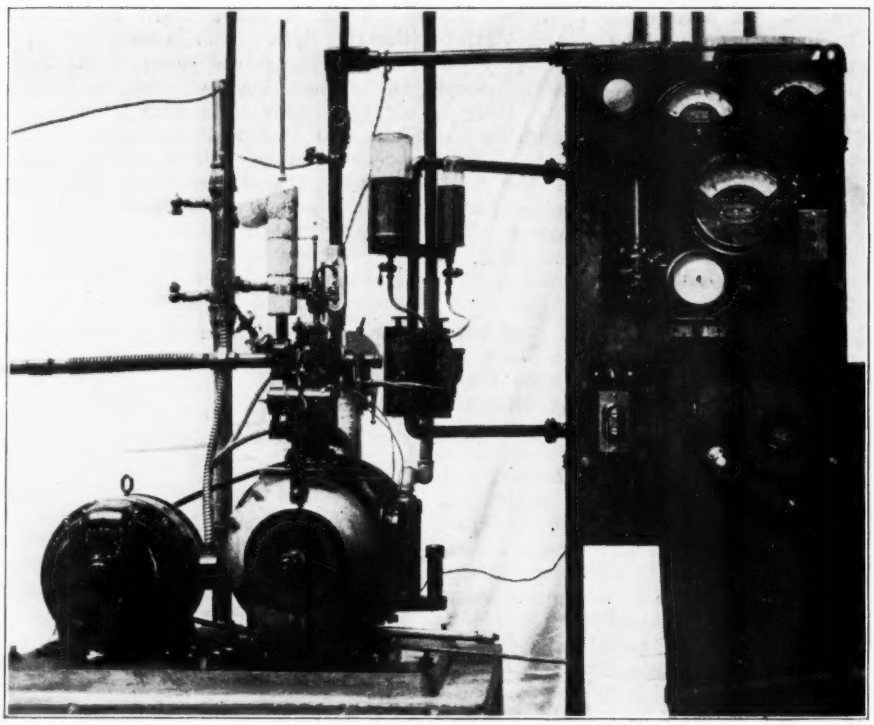


Fig. 1—New type knock testing engine developed by the Ethyl Gasoline Corp.

in many cases not controlled, and usually operators had no conception of the mixture strength metered by the carburetors.

Since these pioneer days more refined apparatus has been developed and attempts have been made to determine the effect of engine conditions on knock ratings. At present there is a growing tendency to standardize on definite types of apparatus.

Inasmuch as I have been connected with the Ethyl Gasoline Corp. during the past few years while intensive development of anti-knock apparatus has been going on, I am in a position to discuss this company's experiences with knock testing apparatus from the pioneer days up to the present time. In this period 122 knock testing engines have been manufactured and distributed to 75 companies which maintain 94 laboratories located in all parts of the United States, Canada, Europe, Australia and South America.

As previously stated, the first machine used by the Ethyl Gasoline Corp. was an air-cooled Delco lighting plant of somewhat increased compression, provided with a tapped opening in the head to receive the bouncing pin element which served to indicate the intensity of detonation. In the early days it was realized that knock ratings are useless which are reported in terms of some engine adjustment, such as spark advance, throttle opening, compression ratio, etc.

Instead, the tendency of any fuel to detonate was expressed in terms of the detonation tendency of some standard reference fuel. The speed of the engine was about 1800 revolutions per minute and no attempt was made to control the speed or to find out what it actually was. Engine equilibrium was rarely obtained and tests were quite frequently disturbed by such small things as the opening of a window in the laboratory.

An effort was made to adjust the mixture strength of the standard reference fuel for maximum knock but the sample under test was fed to the carburetor at the same float chamber level used for the standard reference fuel. A single jet carburetor was employed and a three-way cock permitted a rapid change from the standard reference fuel to the sample under test.

The impossibility of maintaining constant cylinder and cylinder head temperature of the air-cooled engine was recognized early and a water-cooled cylinder and head were designed. It was found on test that the speed of 1800 revolutions per minute previously used would not permit the engine to knock at a reasonable compression ratio when the water-cooled cylinder and head were installed.

BY THE rewinding of the generator the speed of the engine was materially reduced and a shunt field rheostat was provided so that the operator could maintain a speed of 1000 revolutions per minute by manual adjustment. Water was used as a cooling medium and positive circulation was provided by a small centrifugal pump.

Due to the difficulty of making float assemblies which would maintain constant level, a carburetor was developed which maintained constant fuel levels by means of small over-flow cups. The bouncing pin apparatus as used on the air-cooled engines was retained unchanged except for a decrease in the bore of the graduated portion of the electrolytic cell in order that small differences of gas evolution might be measured more readily.

These machines were so much superior to the previous uncontrolled air-cooled type that they were adopted as standard equipment in all the laboratories of the Ethyl Gasoline Corp. and were supplied to a large number of oil refineries.

Despite the constant attention on the part of operators, it was impossible to maintain constant cooling water temperature and after some experimental work it was decided to adopt evaporative cooling as standard. By the use of a reflux condenser the temperature of the water in the cooling system was maintained at the boiling point regardless of the flow of cooling water through the condenser itself.

Experiments with several speeds of operation indicated in general that lower speeds gave somewhat more consistent operation and a speed of 600 revolutions per minute was finally chosen, which necessitated further changes in the wiring of the generator of the unit. During the same period float chambers which maintained constant liquid level had been developed and these were mounted in such a manner that the air-fuel ratio of the mixture could be varied over a wide range.

It was evident that all fuels should be tested at the air-fuel ratio at which maximum detonation is produced, hence the adjustment of the mixture strength of each fuel for maximum knock was made a part of the technique.

In the early part of 1928 a most disconcerting and baffling discovery was made. It was found that immediately following a change from Ethyl gasoline to a gasoline high in aromatics, such as a benzol blend, there was a pronounced tendency for the intensity of detonation to drop below the intensity which persisted when equilibrium was established some minutes later.

In the same way, immediately following a change from a gasoline high in aromatics to Ethyl gasoline, there was a sharp increase in the intensity of detonation which was followed by a decrease until equilibrium had again been established. Later it was found that fuels other than Ethyl gasoline compared with highly aromatic gasolines produced the same effect.

Up to this time it had been common practice to integrate the detonation on a given fuel for one minute after a shift in fuels had been made. After the discovery of the existence of the unsteady state immediately following a change in fuels it was nec-

essary to change the technique to ensure the establishment of engine equilibrium before a shift was made to the other fuel.

Several explanations of this peculiar phenomenon have been offered but no means for preventing its occurrence have been found, although by a reduction in uncooled cylinder and cylinder head surfaces its duration has been minimized. At present a sufficient number of consecutive one-minute readings is taken on one fuel to ensure the existence of equilibrium after which the other fuel is tested in the same manner.

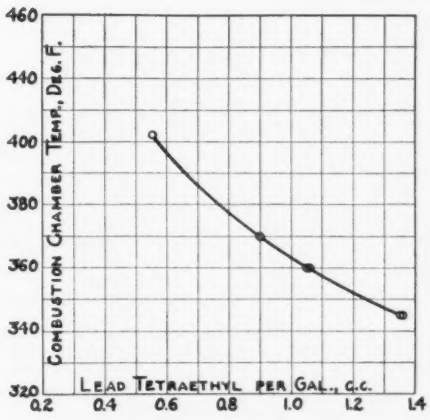
SINCE the beginning of the development work other engines which seemed to offer possibilities as knock testing engines have been tested from time to time. It was believed for some time that two fuels which were equal in anti-knock value in one engine were equal in all other engines. It was during some comparative tests on one of the regular engines and a much larger engine of similar design that another very interesting observation was made.

The problem was to add lead tetraethyl to an aviation gasoline until it matched in anti-knock value a certain benzol blend. On the water-cooled Delco engine it was found necessary to add 3.7 cubic centimeters of lead tetraethyl to the aviation gasoline to make it equal to the benzol blend, while on the larger engine with some cooling medium, similar cooling system and carburetor as well as identical technique, only 1.9 cubic centimeters of lead were required to accomplish the same result. The same results were obtained repeatedly by different operators on different days. It should be noted that the test on each engine was reproducible and represented the true lead requirement of the aviation gasoline under the conditions existing in each engine.

Due to the fact that high compression aviation gasolines were becoming of increasing importance and that it was necessary for such organizations as the army to have some yardstick by which to measure the anti-knock value of aviation fuels, a cooperative program of research and development was arranged with the army engineers of Wright field, Dayton, O.

Since that time, due especially to the good work of S. D. Heron, a knock-testing unit has been developed which may be used successfully to rate aviation fuels under the high temperature conditions prevailing in aviation engines. The same engine, by a change of temperature conditions, is also suitable for testing the anti-knock value of automobile engine fuels.

A laboratory model of this new engine is shown in Figure 1. Only the crankcase casting of the standard Delco lighting plant is used. The crankcase end casting is special and



LEAD TETRAETHYL IN AVIATION GASOLINE TO EQUAL 60 PARTS MID-CONTINENT GASOLINE PLUS 40 PARTS BENZOL

Fig. 6

provided with two extra large ball-bearings which, with another double-roll ball-bearing, in the standard crankcase housing support the extremely heavy crankshaft which has a diameter almost equal to that of the cylinder bore.

After a considerable amount of experimental work it was found that a bore of 2½ inches was the maximum which could be used without danger of preignition at high temperatures. The stroke is 4⅝ inches.

The cylinder and cylinder head, designed by Mr. Heron, are extremely well cooled. Both valves as well as spark plug and bouncing pin opening are entirely surrounded by water. The water passages in the cylinder and head are extremely large and permit the circulation of 8 gallons of cooling liquid per minute.

THE elimination of large surfaces not cooled by the cooling medium in the jacket is absolutely necessary to prevent an undue persistence of the unsteady state described above, following a change of fuels, and to obviate the possibility of preignition when aviation fuels are under test.

The cooling system will successfully handle any liquid having a boiling temperature from that of alcohol to that of ethylene glycol and even with boiling ethylene glycol the engine does not operate near the point of preignition. The exhaust valve stem is lubricated by a simple but effective lubricator which holds sufficient oil for a period of several months operation.

The free action of both exhaust and intake valves is essential for satisfactory operation of any knock testing engine. The piston, of special design, is made of aluminum alloy. A considerable amount of metal is provided above the top ring to protect the top ring from the heat generated when the engine is operated at high compression pressure with ethylene glycol as the cooling agent.

The connecting rod is sufficiently large to care for a cylinder many times the size of the one used on this engine but this size is essential to withstand the tremendous pressures due to detonation at compression ratios as high as 10 to one. The flywheel has a weight of 150 pounds and, due to its inertia, its angular velocity is at all times almost constant.

Since small changes of speed have been found to affect greatly the intensity of detonation, the direct current generator has been replaced by a synchronous generator which draws current from the ordinary alternating current line for starting the engine.

After the engine starts firing the synchronous motor floats on the line as a synchronous generator and absorbs the power output of the engine. The synchronous generator is driven through V-section rubber belts, grooves being provided in the flywheel for the rubber belts.

This drive is free from slippage and possesses the right amount of shock absorption action to prevent undue strain on the generator or engine when the latter is being started. With the electrical system just described, the speed regulation is as good as that of the generating equipment of the power company which furnishes the alternating current.

ALTHOUGH the frequency of the current may vary considerably over a long period of time it is not likely to vary much in a short period of time, hence there are no sudden changes of speed which are so disastrous to knock testing.

The constant speed characteristic of the synchronous generator is particularly valuable when the air-fuel ratio for maximum knock is being determined. There is a tendency for the speed of any direct current generator to increase as the point of maximum power is reached and the operator must constantly readjust the speed by manual control.

When the synchronous generator is used the speed is constant regardless of air-fuel ratio and the point of maximum knock can be determined much more quickly.

The cooling system of the new machine is interesting. Evaporative cooling is used. The condenser is located at some distance above the level of the engine cylinder because it is necessary to maintain a high head on the suction side of the circulating pump to prevent flashing of the liquid when ethylene glycol at boiling temperature is being circulated. The circulating pump handles eight gallons of cooling liquid per minute.

The liquid enters the cylinder tangentially at the lowest point of the jacket and, due to its high velocity,

has a swirling motion in the jacket which tends to wipe all surfaces free from bubbles of cooling liquid vapor.

A neon-tube spark protractor, mounted on the crankshaft, indicates the spark advance.

It should be noted that few fundamental changes have been made in the old apparatus to produce the new. In almost every case the changes are refinements to secure greater consistency at ordinary temperatures and to permit the satisfactory rating of aviation gasolines under the conditions existing in aviation engines.

Comparative Anti-Knock Tests of Fuels In Automobile, Airplane And Test Engines

A large number of previous tests has indicated that fuels equal in anti-knock value in one engine under one set of conditions are not necessarily equal in other engines under the same conditions. Likewise, it has been proved that fuels equal in anti-knock value in one engine under one set of conditions are not necessarily equal in the same engine under other conditions.

Temperature has been found to have a greater effect on the ratings of fuels than all other variables combined. In fact, the variation in ratings with changes of speed, spark advance, compression ratio, throttle opening, etc., can in almost every case be traced to a difference in temperature conditions.

Fig. 6 shows a curve of lead tetraethyl required in an aviation gasoline to equal in anti-knock value a blend of 40 parts of benzol and 60 parts of Mid-Continent gasoline, plotted against combustion chamber temperature, as determined on one of the knock testing engines now manufactured by the Ethyl Gasoline Corp.

It will be noted that at a combustion chamber temperature of 345 degrees F. measured at a given point, 1.35 cubic centimeter of lead tetraethyl are required in the aviation gasoline to make it equal to the benzol blend. At a temperature of 402 degrees. F., secured by the use of ethylene glycol as a cooling agent, only 0.35 c.c. of lead tetraethyl are required to accomplish the same result, and the curve between the temperatures named is almost a straight line. The intermediate temperatures were obtained by using varying portions of ethylene glycol and water as the cooling agent.

Mr. Heron found even more striking variations in his tests of various types of aviation gasolines at several temperatures. At extremely high temperatures such as those encountered in air and Prestone cooled aviation engines, benzol, for example, has been found to be little better than ordinary Mid-Continent gasoline.

Mr. Heron has determined the operating conditions for the new engine which duplicate the performance of aviation fuels in aviation engines. With a cooling medium temperature of from 300 to 350 degrees. F. the behavior of aviation fuels in the new engine previously described is indentical with their performance in air and Prestone cooled aviation engines and thermocouples inserted in the combustion chambers of the test engine and aviation engines usually show approximately equal temperatures of operation on the same fuel.

(To be continued in the Oct. 23 issue)

Dr. Brown Comments on Clayden's Knock Testing Article

CLEVELAND, Oct. 10

DR. GEORGE GRANGER BROWN, professor of chemical engineering at the University of Michigan and investigator of the possibilities of natural gasoline as a motor fuel for the Natural Gasoline Association of America, comments in the following open letter on the article by A. Ludlow Clayden on testing of motor fuel for knock rating which was published on page 91 of the Oct. 2 issue of NATIONAL PETROLEUM NEWS.

Dr. Brown in the letter which was addressed to Mr. Clayden, said:

"I have just finished reading your article on page 91 of Oct. 2 issue of the NATIONAL PETROLEUM NEWS. You have undoubtedly done a real service in calling attention to the refinery superintendents that knock testing is an art demanding considerable skill and training. It is my own opinion that most of the wide discrepancies reported in knock rating tests are due to the fact that many of the testers are not sufficiently competent.

"There is one point, however, with which I do not agree. The next to the last paragraph, first column page 92, contains the following statement:

" 'There are great hopes, of course, for the blend of heptane and the iso-octane discovered by Dr. Graham Edgar. The former is a violently knocking fuel, the latter much better than benzol.'

"Iso-octane has approximately the same knocking tendency as a blend containing 15 per cent of heptane and 85 per cent of benzol. Iso-octane develops a very violent knock on our Universal test engine at a compression ratio of 8.5:1 and 30 degree spark advance, while under the same conditions pure benzene will not knock at a compression ratio of 14.5:1.

"With motors operated under conditions resembling those usually found in water cooled motor cars, I have never heard of an authentic case of benzene knocking. It will pre-ignite readily, but so far as my experience indicates it will not knock.

"I wish you would check these statements, and if you agree with me perhaps you would like to correct the statement appearing in the last issue of NATIONAL PETROLEUM NEWS. I favor the standard used by the British of heptane and pure benzene over the use of pure iso-octane for a number of reasons, not the least important of which is that benzene does not knock and iso-octane does.

"When making tests with extremely high cylinder temperatures, as representative of air cooled engines, my statements may be subject to revision since I have not had the opportunity of making sufficiently extensive tests under these conditions to warrant any positive statement."

Pollution Committee Of A.P.I. to Meet

NEW YORK, Oct. 15.—The American Petroleum Institute's committee on pollution of navigable waters by oil, will meet Oct. 22 at the Statler Hotel in St. Louis to discuss preparation of a code of good practice in the prevention of pollution. D. V. Stroop, of the institute staff, is chairman of the committee.

Other matters to be considered include the desirability of conducting further field or laboratory examination work of existing separators, skimmers, traps and other devices for pollution prevention.

The technical committee on pollution was appointed in August and includes these members:

H. H. Anderson, Shell Oil Co., San Francisco; H. W. Camp, Umpire Refineries, Tulsa; John Carlstrom, The Texas Co., Port Arthur; H. B. Haney, Associated Oil Co., San Francisco; W. B. Hart, Atlantic Refining Co., Philadelphia; John S. Hess, Sinclair Refining Co., New York; Fritz Karge, Union Oil Co., Los Angeles; Harry Lowe, Vacuum Oil Co., Paulsboro, N. J.; V. L. Martin, Prairie Oil & Gas Co., Independence, Kan.; A. S. Russell, Standard Oil Co. of California, El Segundo, Calif.; W. E. Soden, Sun Oil Co., Marcus Hook, Pa.; E. E. Swope, Magnolia Petroleum Co., Beaumont, Texas; C. E. Waite, Standard Oil Co. of New Jersey, Bayonne, N. J.; and George W. Watts, Standard Oil Co. of Indiana, Whiting, Ind.

Robert F. Hand, vice president, Standard Shipping Co., New York, is chairman of the general committee on pollution.

The Editors' Viewpoint

National Petroleum News

All Industries Should Combine in Tax Study

SAID Harry H. Smith, secretary of the Mid-Continent Oil & Gas Association, speaking for Kansas oil operators in the hearing before the Kansas Tax Code Commission:

"Equity in taxation of physical property consists in taxing every kind, species and item of such property at the necessary rate *per dollar of value*. This is the ideal of the general property tax. Failure to secure ideal results is traceable to two main causes: (1) Failure to ascertain and state the true value of the various kinds and items of property; (2) Failure to discover and put on the tax roll many items of property, particularly personal property. . . ."

In this moderate language there is a terrific indictment of tax systems and tax authorities. Secretary Smith was over kind, probably because his was a case of special pleading. The facts are that Kansas is out to find some new method of raising money and it naturally turns its attention to the industries that appear to be doing a big volume of business, whether they are making any profits or not.

Kansas is typical of other oil producing states. There is a rumor in the air now that politicians in Oklahoma and other states in the southwest are eyeing the oil and gas industry greedily. The matter of gasoline taxes receives due attention from nearly every legislature that meets and the fact that gross production taxes have not been disturbed for some time is no guaranty that they will not be and that soon.

The whole matter has gotten away from fundamentals. Secretary Smith, while talking about unjust distribution, might have gone ahead and said some things about the unjust total burden. Any state that begins examining the tax situation does it not with a view of equally taking each dollar's worth of property but of finding some way to chisel out more money.

Industry should unite on the subject. Instead of each industry going solemnly before a tax board and claiming King's Ex when new revenue is demanded, all the oil men, the cotton men, the railroads, the farmers and the merchants should descend in a body on the rapacious politicians and give them their instructions. The cost of government must come down if there is to be anything left for anybody. No petitions or pleas are required. Those who own the property are the masters and they should assert their mastery.

Oklahoma, for instance, is staggering under the burden of state schools. There are schools devoted to everything under the sun, unless it be flagpole sitting. The original intent seemed to be to give every sidetrack village in the state an agricultural school or a state normal school. One such school in the state is enough, as one centrally located could be reached for about $10 train fare by any pupil in the state. Yet, industry goes meekly along supporting these useless institutions.

Modern taxation is a hodge-podge and a jumble. Secretary Smith indicted the chaotic phase of it. Someone should go into basic principles and start the revolution. There isn't an industry or a business man or a taxpayer that doesn't complain bitterly about taxes. Everyone would join the cause except that growing army of job and office holders who fatten upon the public. L. E. S.

All Refiners Should Co-operate

COMPARISON of the gasoline stocks statistics collected by the American Petroleum Institute weekly with those collected by the United States Bureau of Mines monthly, shows that the institute is doing an unusually good job in getting under way a rapid collection and dissemination of these important data, not only for gasoline but also for fuel oil.

The institute's statistics covering gasoline stocks are within 2 per cent, when corrected to cover 100 per cent of the refining capacity in the United States, of the monthly and more deliberately collected statistics of the Bureau of Mines.

The Bureau of Mines statistics are available about 30 days after the refiners gage their tanks for the report to the bureau. The institute's figures are issued the third day after the tanks are gauged, issued while they are still "hot" and may be used to the best advantage in keying operations at refineries to the market or storage requirements for each refining district.

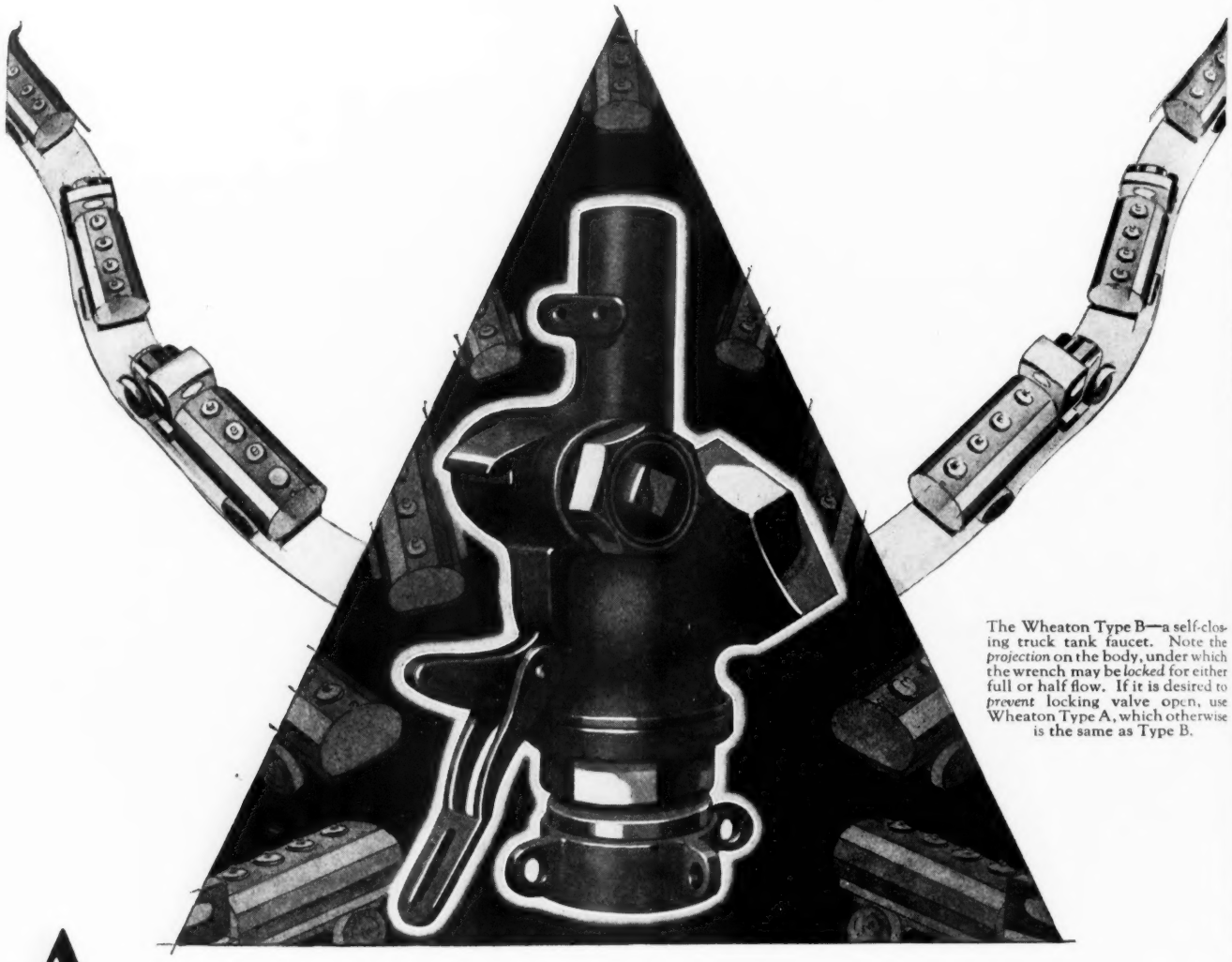
The institute is receiving reports weekly from almost 95 per cent of the operating capacity of the country as revealed in this year's census of refineries by the Bureau of Mines.

All East and Gulf Coast refineries are reporting crude throughput, gasoline, and fuel oil statistics to the institute. More than 95 per cent of the Indiana-Illinois-Kentucky, Louisiana-Arkansas and California refining capacity is reporting. More than 90 per cent of the Texas and Rocky Mountain capacity is reporting.

But less than 90 per cent of the Appalachian and Oklahoma-Kansas-Missouri refining capacity was reporting early in October, and the latter district was at the bottom of the list in percentage of operating capacity that was reporting.

It seems that a district whose markets are usually so quickly influenced by output and stocks of gasoline would be anxious to cooperate more fully in making a week-to-week survey of the general refining situation.

Those Mid-Continent refiners and those in other districts who have hesitated to supply the institute with the few statistics sought, should reconsider and cooperate for the general good of the refining and marketing divisions of our industry. The cost in time and effort is trivial; the results are of immeasurable worth.—R. B. S.



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General Proration in Oklahoma Will Become Effective Oct. 16

TULSA, Oct. 12

OKLAHOMA operators, following their meeting Oct. 8, applied to the state corporation commission for order prorating flush and semi-flush pools of the state. The plan as drawn up by a committee named by the president of the Mid-Continent Oil & Gas Association, was adopted in a general meeting of operators without change and without dissent.

The corporation commission assigned Oct. 15 as the date for hearing and it was expected that, following its practice in the Oklahoma City and East Earlsboro cases, the commission would issue an order at once, to become effective the next day, or Oct. 16.

The operators' meeting was a short one and no objections were voiced. While there were some present who felt that leases in the Seminole district that were making very small production should be spared in the general order to be issued, they waived such protests and the plan will go through 100 per cent. A few producers in the areas which will be affected were not represented in the meeting, but it is understood that their assent to the plan was obtained afterward.

In no similar meeting held since the trouble started in Seminole three years ago has there been a total lack of dissent from any plan proposed.

As recited in NATIONAL PETROLEUM NEWS last week, the Oklahoma City pool will produce to capacity from Oct. 12 to Nov. 1. During November it will be on a 40 per cent proration basis and throughout December it will take a 50 per cent cut.

East Earlsboro will finish this month on a 50 per cent proration. The order covering it expires Oct. 28, but the operators agreed to carry it on three days more to start on a 40 per cent proration in November and return to 50 per cent in December. Thus, during November and December it will be handled as is Oklahoma City.

The Greater Seminole district, embracing the Searight, Seminole, old Earlsboro, Bowlegs, Little River, Mission, Maud, Carr City pools and the St. Louis, Allen, Sasakwa, Asher and the Lovell pools, Logan county, will be restricted in production 20 per cent from the date the order becomes effective to Nov. 1. During November the same proration will apply and through December the cut will be 25 per cent.

As previously reported, it is hoped by these percentages of restriction to hold the state's daily average to 660,000 barrels daily for the next 80 days, or 140,000 barrels less than the estimated potential for this period.

Ray M. Collins will be umpire in charge of the entire state. Committees have been appointed to advise with him. For the general Seminole territory, including St. Louis, the committee is R. F. MacArthur, of the Barnsdall Oil Co.; J. S. Sidwell, Prairie Oil & Gas Co.; J. J. Conry, Carter Oil Co.; Kendall Winship, Gypsy Oil Co. and Clark Hawkins, Magnolia Petroleum Co.

For the Allen pool, the advisory committee is R. A. Griffith, Sinclair Oil & Gas Co.; George Moody, Mid-Continent Petroleum Corp. and C. H. Wright, Sunray Oil Co.

For the Lovell pool the committee is Reid W. Bond, Shell Petroleum Corp.; H. D. Aggers, Wentz Oil Corp.; Glen Harroun, Sinclair Oil & Gas Co. and Max E. Church, J. E. Crosbie, Inc.

It was thought probable that the order to be issued would contain the specific admonition to pipe line and crude oil purchasing companies to take no oil in violation of the order. That provision was inserted in a proration order for the first time in the one issued on the Oklahoma City pool, under which it was restricted 100 per cent for 30 days.

Umpire Collins began early in the past week drafting the rules under which proration will function. For the Seminole City, Searight, old Earlsboro, Little River, St. Louis, Allen, Bowlegs, Mission, Maud and Carr City pools, the daily average production from each lease during September will constitute the potential for the period Oct. 16-31. New potentials for November will be arrived at by using the decline curve on each lease.

To establish equality between producing and wells being drilled in these pools on Oct. 16 and wells commenced prior to Jan. 1, there will be a shut-down of 10 days—three in addition to the seven for cementing. Thereafter, the total production from the drilling well when it is brought in will be classed as free oil during the balance of the period Oct. 16-31.

Oil run to storage will be classed the same as pipe line runs.

For the flush pools of Asher, East Little River, Sasakwa and the Wilcox sand wells in the Allen pool, 24-hour open flow gauges will be taken on Oct. 16, 23 and 30 and Nov. 6, 13, 20 and 27. Drilling wells are penalized six days more than those in the older and more settled pools.

Lovell pool operators will arrive at their potentials by decline curve method.

Operators are permitted to achieve the required proration in any manner they please. The Prairie Oil & Gas Co. announced immediately that it would return to the Sunday shut-down, which practice was followed by a number of companies early this year. With the lifting of proration in May, the Sunday shut-down was discontinued except in the Burbank, where Prairie continued to give its men a day of rest. Barnsdall Oil Co. has intimated that it will effect part of its proration by shutting in wells entirely on Sunday and it is expected that a number of others will adopt the same method.

David Donoghue Joins Tidal Oil Staff

TULSA, Oct. 12.—David Donoghue, who recently resigned as vice-president of the Texas Pacific Coal & Oil Co. in charge of land and geological work, has become affiliated with the Tidal Oil Co. as an executive assistant to President E. H. Salrin. The announcement was made by Mr. Salrin today.

Mr. Donoghue is one of the best known of petroleum geologists. He has lived in Texas for several years, but his experience has been varied. He will remain in Fort Worth for a time.

David Donoghue

The Mid-Continent Skyline

By Lawrence E. Smith

IT WAS an unusual treat that Governor Holloway, of Oklahoma, gave the citizenry in Tulsa last Wednesday night when he spoke at the annual dinner of the Mid-Continent Oil & Gas Association. Not only did the governor say that taxes are too high but that he thought some study should be given to reducing the expenses of government. He is quite old fashioned in his attitude, for the usual thing is to invent new ways of grinding out more revenue from a groaning public.

Incidentally, the governor said he believed the oil industry of Oklahoma is paying as much as it should be asked to pay for the support of government. That is timely. Campbell Russell, who wages warfare on the oil industry year after year, mounted his horse again the other day and began an educational campaign in an Oklahoma City newspaper. It is Campbell's idea that a 9 per cent gross production tax would be about right.

* * *

N. A. C. Smith, supervisor of the Bartlesville station of the U. S. Bureau of Mines, met us on the street the other day, drew a pistol and ordered us to publish a joke he had just heard. Very well, Mr. Smith, here it is:

It seems that a well-to-do farmer in Arkansas was a persistent moonshiner. He became so bold about his manufacturing and retailing activities that a reluctant sheriff finally made the arrest. Said the judge, when he appeared for arraignment:

"I can't understand why a man in your circumstances should resort to law violation as you have. You have plenty of money, a fine home and are much better off than anyone in the community. Why is it?"

"Well, I'll tell you," said the culprit. "I make liquor because I get to meet all the best people."

* * *

Died: In Wichita, Kans., Charles W. Merydith, drilling contractor. He was 73 years old. Formerly, he lived in Marietta, O., but operated in the Mid-Continent fields for several years.

* * *

Fair Warning Department: "Oil men . . . have a weather eye cocked for some modern John D. Rockefeller to lead them out of the economic wilderness that has resulted from world-wide overproduction of crude oil. Thus far, this new, industrial genius has not strode into view. Unless he shows up soon, the industry may find its way without him.—Owen L. Scott, in Tulsa World.

* * *

Serious illness of Richard Guiberson, calling for a major operation, caused the cancellation of the concert he was to give on Oct. 14. Mr. Guiberson, a vice-president of the Guiberson Corp., equipment manufacturers, is a baritone and has been prominent in musical affairs on the Pacific Coast for several years.

* * *

In the reorganization of the First National Bank, of Pawhuska, Okla., A. W. Lucas, of Skiatook, was elected president. Mr. Lucas has been a banker and oil producer in Oklahoma for 20 years. He is one of the principal stockholders in the Skia-Tex Petroleum Co., operating in the Texas Panhandle.

* * *

The long-rumored merger, consolidation or whatever, of the Prairie Oil & Gas Co. and the Sinclair Consolidated Oil Corp., was dignified by a statement made by Earl W. Sinclair, president of the latter company, while he was in Tulsa last week attending the Petroleum Exposition. Said Mr. Sinclair:

"News dispatches published recently regarding merger of the Sinclair Consolidated Oil Corp. and Prairie Oil & Gas Co. interests are misleading. No terms or agreements for such a merger have been made and if ever brought about you may be assured it will be by merger and not absorption of Sinclair Consolidated Oil Corp. by any other company.

"The rumors reported, continue in spite of denials by H. F. Sinclair and directors of the corporation. These rumors are undoubtedly inspired by interests desiring to misrepresent the situation in view of the overwhelming vote of the stockholders for the present management of the corporation. The recent statement of H. F. Sinclair that 'I have no intention of retiring from the oil business' should be conclusive."

E. W. Sinclair

* * *

C. J. Guarin, formerly a district superintendent of production for the Continental Oil Co., is now with the Louisiana Oil Refining Corp. in Shreveport.

* * *

A shifting about of Empire Oil & Refining Co. gasoline plant superintendents in the Mid-Continent occurred with the transfer of P. L. Lemley from the Lacy plant to the Ponca City refinery. E. L. Stauffacher, of the Wichita plant, succeeded Mr. Lemley; Dick Rodgers, of the James plant, went to the Wichita plant; C. F. Fischer, of the Seeley plant succeeded Mr. Rodgers and E. R. Beckford, assistant superintendent of the Wilson plant was made superintendent of the Seeley plant.

* * *

The new president of the Continental Supply Co., H. Brooks Gutelius, was back among Tulsa folk during the Petroleum Exposition. Mr. Gutelius recently succeeded Frank M. Parnell in the presidency, Mr. Parnell becoming chairman of the board on the resignation of William B. Hughes. Mr. Gutelius lived in Tulsa for years, managing the Continental's affairs in this territory and operating producing properties, with associates, as the Plymouth Petroleum Co.

After a long spell of cool weather which caused everybody to lay his thin suit away in the moth balls, late September brought in another warm spell. There is again some sentiment in favor of organizing a local chapter of Doukhobers.

* * *

W. L. Crow has left the Slack Petroleum Co. and opened an oil marketing office in the Hunt building, Tulsa. Prior to joining the Slack company the first of this year he was with the Henderson Co., natural gasoline manufacturer.

* * *

J. B. Van Hooser is president of the recently organized Caravan Oil & Refining Co., which purchased a small refinery in Oklahoma City from G. W. Turley. The Hunt Engineering Co., Oklahoma City; Guy B. Treat, chief engineer of the Oklahoma Railway Co. and C. J. Peterson, of Topeka, are interested in the new company. The Turley refinery was built more than 10 years ago and operated for a while as the Home Refining Co. Capacity will be increased to 5000 barrels daily and it will get its supply of crude from the local field.

* * *

A newspaper man finally got a "break" in the news. John W. Naylor, who writes oil news for the Fort Worth Star-Telegram, walked right into Associated Press dispatches as "Capt. Naylor," when Governor Dan Moody decided that Borger, Tex., needed a little martial law. John is chief executive officer of the national guard cavalry unit that was sent up to take charge of the oil town.

* * *

Wallace C. Franklin, vice-president and counsel of the Tidal Oil Co., has been elected a vice-president of the Arkansas River Association. This organization seeks federal aid in developing the river as a transportation artery. One of its immediate aims is the establishment of a barge line on such part of the river as will support one.

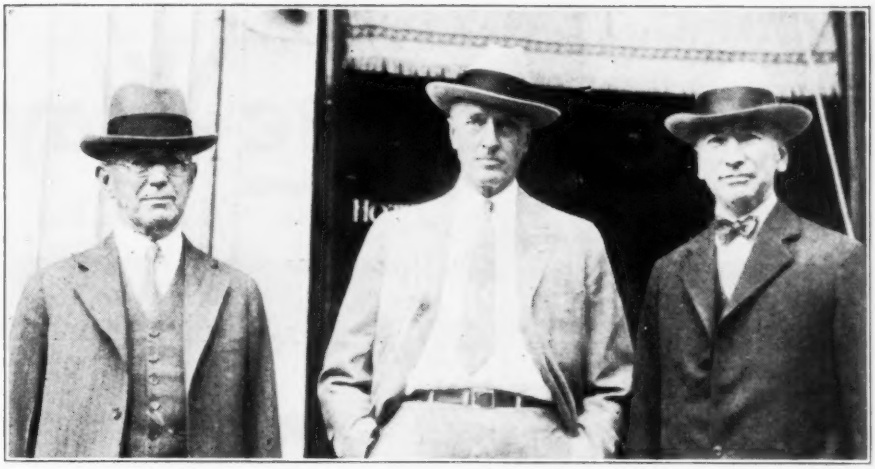
* * *

Scientific Note by C. V. Millikan, Amerada Petroleum Corp., in a Tulsa newspaper: "The urge to gamble, which endocrinologists have traced to organic sources in man's body, has resulted in a bulging history of exploration for oil, and overproduction, which has sent the price of crude oil and its products crashing.

"Scientists and technologists came to the rescue of the staggering industry, and now great progress has been made in reducing the cost of production, transportation, refining, manufacturing and marketing. Lowering this cost has enabled the 12 billion dollar business to remain solvent."

Rebuttal, by E. B. Reeser, president of the American Petroleum Institute, in an address before the A. I. M. E., in Tulsa: "May I suggest that you (petroleum engineers) declare a moratorium for six months on all work in connection with deeper drilling, repressuring and on other plans which you have in mind, devoting all your time to the teaching of the theory that efficiency means proper financial results?"

The jury is still out.



These gentlemen wandered into the field of our Graflex fire a few days ago as they were en route to lunch. Left to right, W. S. Fitzpatrick, chairman of the board, Prairie Oil & Gas Co.; Nelson K. Moody, president of the Prairie, and R. A. Griffith, president of the Sinclair Oil & Gas Co.

* * *

Riding on the steam cars here and there we are always intrigued by those pictorial signs posted by the Pullman company, warning travelers against card sharpers. We do not pretend to know how enlightened the rest of the country is on poker players tricks, but in the Southwest the stratagems illustrated by the Pullman people would not fool a six-year-old boy. One picture shows a man with five aces in his hand.

That would invariably result in a sudden and violent death out here and the jury would acquit the slayer without deliberating on the evidence. Another picture points out the folly of playing with a man who has a card concealed, quite imperfectly, in his sleeve. That bit of wizardry has not been used, so far as we know, since the Rutherford B. Hayes administration, or thereabouts. We should like to see the Pullman company give us some real warnings.

* * *

An interesting little story, dating back to the war days, is told in the current issue of the house organ published each month by the Mid-Continent Map Co., Tulsa. It concerns John Markham, Sr., who, the publication says, happened to be on a train going into the Cushing district which train also carried one of those numerous commissions from foreign countries that poked about in this country just after the United States became a party to the war. This particular commission was from Russia.

"Naturally," says the map company's publication, "he was introduced to the commission and presented as one of the oldest oil producers in the Mid-Continent fields. You who know the elder Markham are well aware that he is always frank in the expression of his opinions. Upon being introduced he said, 'so you fellows are Russians, are you? Well, that lowers you in my opinion about half. Are you in the oil business?'

"And when the members of the commission replied, 'Yes, we are geologists,' Markham replied: 'Well, there goes the other half.'"

* * *

Earl G. Colton, geologist, is president; D. M. Smith, banker and oil operator, vice-president and treasurer and R. P. Lester is secretary of three new companies organized with Okmulgee as headquarters. All the persons named are active in the oil life of Okmulgee. Their new companies are the Mid-western Oil & Gas Co., which will be a producing company; the Mid-western Petroleum Corp., royalties and Mid-western Drilling Co.

* * *

Married: In Washington, Mo., Oct. 15, W. B. Wilson and Miss Nelle B. Schulze. Mr. Wilson is chief geologist of the Gypsy Oil Co., Tulsa.

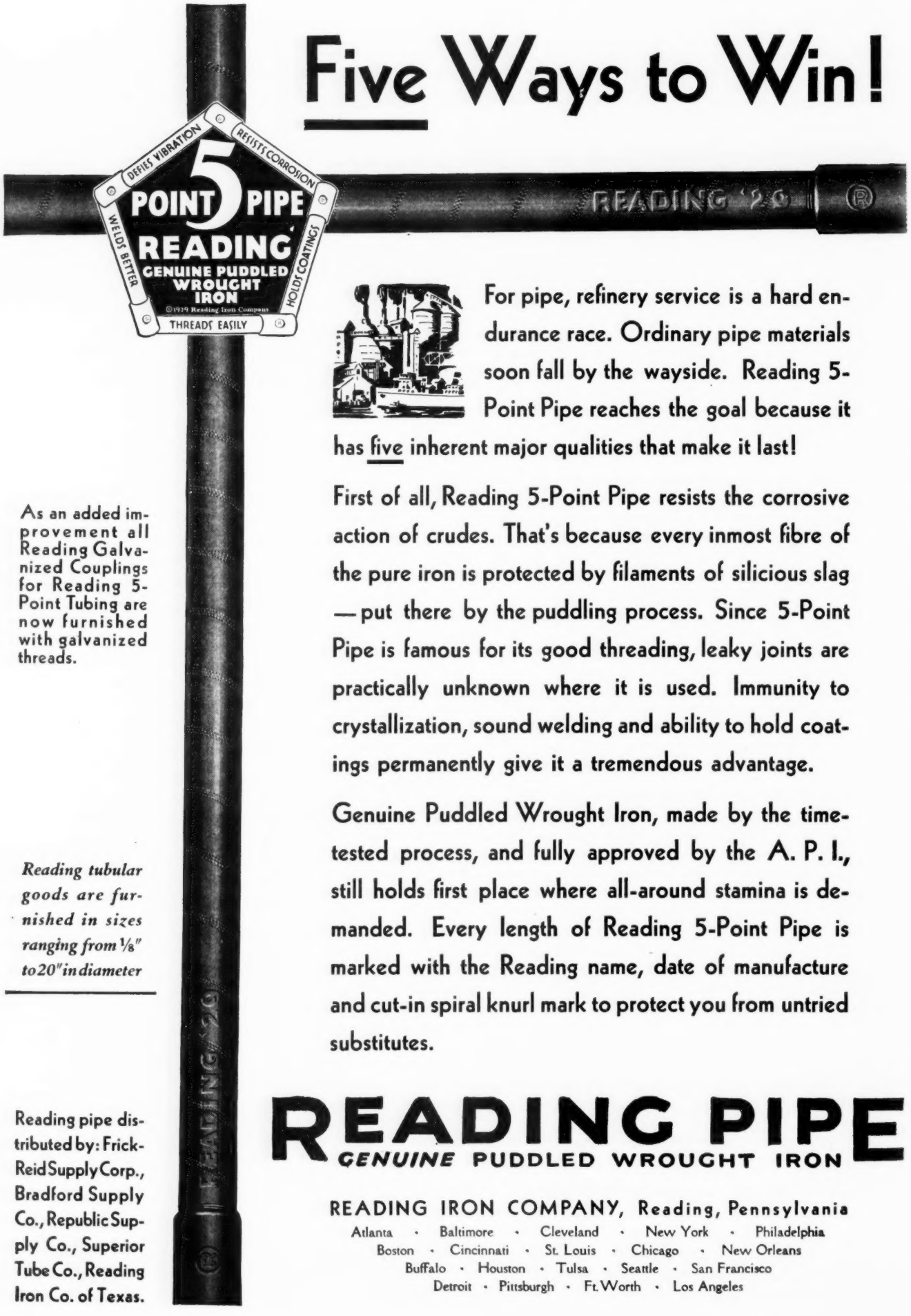
* * *

T. E. Weirich, chief geologist of the Tidal Oil Co., left Tulsa the other day for a hunting trip. This time it is game, not oil bearing structures, that he is hunting.

* * *

Paul Lyons, of the Sinclair Crude Oil Purchasing Co., is expected to return to duty soon, following an operation for appendicitis.

Five Ways to Win!



For pipe, refinery service is a hard endurance race. Ordinary pipe materials soon fall by the wayside. Reading 5-Point Pipe reaches the goal because it has five inherent major qualities that make it last!

First of all, Reading 5-Point Pipe resists the corrosive action of crudes. That's because every inmost fibre of the pure iron is protected by filaments of silicious slag—put there by the puddling process. Since 5-Point Pipe is famous for its good threading, leaky joints are practically unknown where it is used. Immunity to crystallization, sound welding and ability to hold coatings permanently give it a tremendous advantage.

Genuine Puddled Wrought Iron, made by the time-tested process, and fully approved by the A. P. I., still holds first place where all-around stamina is demanded. Every length of Reading 5-Point Pipe is marked with the Reading name, date of manufacture and cut-in spiral knurl mark to protect you from untried substitutes.

As an added improvement all Reading Galvanized Couplings for Reading 5-Point Tubing are now furnished with galvanized threads.

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Wilcox Strike in McPherson County Is Chief Feature of Dull Week

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Oct. 12

ONE of those nearly featureless weeks has just closed in the Mid-Continent. Whether the mischievous little god who handles the fate of wildcatters decided to help the operators achieve the desired cut in the oil production or thought he should help the International Petroleum Exposition by withholding counter diversions is, to your correspondent, unknown. The fact is that nothing much happened in Oklahoma, although Kansas came through with a Wilcox sand discovery that may prove to be quite important.

This was the Derby Oil Co.'s No. 1 Stuckey, NE SE of 9-21S-3W, McPherson county. It is some 25 miles northwest of Newton and about the same distance northeast of Hutchinson. It is a half mile south of the No. 1 Voshell, drilled months ago by Ted Washabaugh and others, of Wichita. The latter well, really the discovery in the pool, in the NE corner of Sec. 9, got oil in either the Simpson formation above the Wilcox or the Wilcox itself, but fishing jobs of various kinds kept it from showing its real capabilities.

The Derby well found top of the Simpson at 3282 feet and the Wilcox at 3332. It went into the latter formation only three feet. It started flowing between the six and eight-inch casing strings and its first 24-hour production was 882 barrels.

The owners began swabbing to try to induce the well to perform in orthodox manner by flowing through the inside string of pipe. Its production for the 24 hours ended the morning of Oct. 8 was 1050 barrels, during which time it was swabbed 14 hours, produced by natural flow four hours and was shut in for six hours.

The well is located on a good core drilled structure, with several operators holding acreage nearby. Already, the pool, called in some circles the Voshell, is the subject of a shutdown agreement. Derby took the well off production for 30 days, effective Oct. 9. Four wells which are being started will take delays of 30 days after setting the final string of casing, Derby retaining its discovery rights.

The four wells which will start drilling are the Empire Oil & Refining Co., NE SE NE of Sec. 9, a quarter mile north of the Derby well; McBride interests, who purchased the Washabaugh holdings, SE NE NE of Sec. 9; Mid-Kansas Oil & Gas Co., NE NW NE of Sec. 9 and Sinclair Oil & Gas Co., NW corner of Sec. 10, offsetting the old Washabaugh well. No others will be started during the 30-day period.

Ten miles northeast of this pool, The Texas Co.'s No. 1 Munn, NW NE of 12-20S-2W, made 125 barrels the first hour; 175 barrels the second hour and 230 barrels in the next two hours, pinched in with 125 pounds back pressure. Its production in 18 hours was 1500 barrels, 3 per cent water and 3 per cent b.s. It is a diagonal offset to Shell Petroleum Corp.'s No. 2 Ritz well, which produces from the same chat formation that the Texas well found its oil in.

Kansas supplied most of the news. Out in Ellis county, western part of the state, Phillips Petroleum Co.'s No. 1 Barjo, SE NW of 9-13-19W, found a pay at 3592-98 feet and filled up 1500 feet in oil in 12 hours. In Russell county, which contains the original pool of this area, Empire Oil & Refining Co. and Prairie Oil & Gas Co.'s No. 1 Ochs, SW NE NE of 23-15-14W, is pumping around 300 barrels daily from the Gorham sand found at 3368 feet. It is 12 miles south of the town of Russell.

Some 12 miles southeast of this well, Slick, Pryor & Lockhart and Prairie Oil & Gas Co.'s No. 1 Sellens, in 36-16-13W, which came in several weeks ago, has been deepened and its production went up from 250 barrels daily to 500.

OKLAHOMA CITY had plenty of excitement during the week. As mentioned in last week's issue, Slick's No. 1 Glidden, SW SE of 13-11-3W, made the phenomenal production of 4725 barrels in 5½ hours. The big excitement came, however, when Sinclair Oil & Gas Co. drilled in No. 3 Stamper, SE NW of Sec. 30-11-2W, offsetting production.

The well came in at total depth of 6555 feet with an estimated 100 million feet of gas and 150 barrels of oil per hour. The strain on the straps was too great and one of them "blew up." Somehow, no one knows just how, the well took fire and for several days there was a merry-to-do, with gasoline plant and considerable storage gasoline menaced.

Kinley Brothers, of Tulsa, were called in. Their specialty is walking up to one of these flaming monsters with an arm load of gelatin and shooting the flame out. After much labor of clearing away the debris in the form of derrick steel and other impedimenta which might retain heat enough to ignite the gas again after it was put out, the shot was placed and the flame extinguished.

Everybody that was available was mustered into service by Glen Harroun, Sinclair superintendent, moving away the obstructions, playing streams of water on the workers. As this is written the well is blowing wild, but was expected to be brought under control soon.

In the Texas Panhandle, the No. 1 Saunders, of Dodson and Shell Petroleum Corp., Sec. 40, Block 3, I. & G. N. Survey, Gray county, had first oil at 2915 feet and total depth of 3110 feet. It was making 700 barrels per day before shot at 2925-3055 feet and after shot it produced 800 barrels in 10 hours.

It is a half mile north of production in the Worley pool, which in turn is three miles north of the better known Finley pool, one of the prolific spots in Gray county. In the latter pool, White Eagle Oil & Refining Co.'s No. 1 Faulkner, Sec. 29, Block B-2, H. & G. N. Survey, had top of pay at 8210 feet and started off at 55 barrels per hour. It produced 406 barrels the first nine hours.

* * *

Notes on the Week

East Earlsboro pool, opened Oct. 5 for 24-hour open flow production to determine potential for the 50 per cent proration, produced 50,529 barrels from 31 wells.

* * *

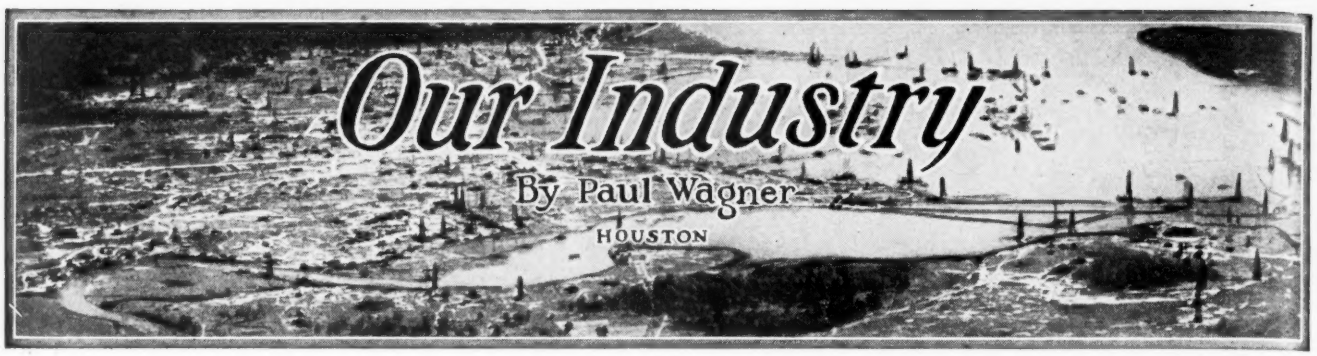
The test drilled by F. R. Billingslea and others in 28-17-6E, Lincoln county, just west of the old Drumright pool, was a Wilcox failure. That formation was found at 3412-3480 feet and the hole filled with water.

* * *

Phillips Petroleum Co.'s No. 1 Katz, Sec. 35, Block Y, A. & B. Survey, Hutchinson county, Tex., had initial production of 1500 barrels. This is in a new area about three miles southwest of Borger.

* * *

Late count on Oklahoma City operations reveals 132 wells drilling, 24 rigs and three locations. There were 18 wells drilling below 6000 feet.



HIRAM A. KING, vice president of Sinclair Oil & Gas Co., at Houston, is in executive charge of Gulf Coastal operations, which have centered mainly in the Damon Mound, Orange, South Liberty and Barbers Hill fields. Before his transfer to Houston about seven years ago he was attached to the Tulsa organization of the Sinclair companies. He is a lawyer by training and for a number of years was identified with the Sinclair legal department in Oklahoma. At one time, in the administration of Governor "Bob" Williams, he was an assistant attorney general of Oklahoma. He is a native of Georgia, born at Hazelhurst, where he lived before moving to the Mid-Continent.

* * *

Attention has been directed to a trio of West Texas wildcatters, including G. L. Folbre, by a showing of oil and gas found in the No. 1 White-Herschersen test, in sec. 5, block 51, Reeves county.

At 3238 feet, or eight feet in the lime pay horizon, the White-Herschersen test was bubbling gas through a hole full of sulfur water and globules of oil also were reported showing. The drill went out of the overlying salt formation at 3230 feet, or about 600 feet higher than it was bottomed in the old Herschersen test of the Dixie Oil Co. Inc., drilled a mile and a half away, across the Pecos county boundary, several years ago.

Hiram A. King

Others interested in the White-Herschersen test, besides Mr. Folbre, are Lee O. White, who stays at Pecos City, West Texas, and F. M. Gallagher, who lives at Santa Barbara, California.

* * *

B. B. Jenkins, formerly widely known in Texas in the rush days of early Ranger development, is now "tool-pushing" for the Shell Oil Co. (California) in the Ventura district. Mr. Jenkins, accompanied by his wife and small daughter, recently returned to California after a vacation spent in Tennessee and other southern states.

* * *

H. H. Brewster, drilling superintendent of the Lion Oil & Refining Co., now divides his time between Winkler county, Texas, where the Lion some months ago took over producing properties purchased from the Pure Oil Co., and the Wilbarger division of the Greater Wichita Falls district. The Lion is now drilling two wells in southern Wilbarger county.

* * *

L. P. Denton has been added to the scouting organization of the Texas Pacific Coal & Oil Co., and is working out of the Thurber office in the general Ranger territory.

* * *

Harry H. Hill of the Standard Oil Co. of New Jersey, formerly head of the United States Bureau of Mines at Washington, has been spending a few weeks in Trinidad, West Indies.

* * *

G. D. Hall, for eight years connected with the Guiberson Corp., manufacturers of oil well equipment, has been made purchasing agent at Dallas. He succeeded C. C. Smith, who was placed in charge of inspection and stores.

* * *

C. B. Hulbert, general manager of the Compania Consolidada "Oilwell"

G. L. Folbre

B. B. Jenkins

S. A., at Tampico, has denied reports previously circulated in Mexico to the effect the "Oilwell's" store there was to be closed. The company has only closed its Tampico shop.

* * *

Monroe L. Latham, assistant statistician in the executive department of Humble Oil & Refining Co., has returned to Houston after a honeymoon motor trip to New York City and intermediate points. His bride, formerly Miss Martha Whitten, has been confidential secretary to Alexander Deussen, consulting geologist of Houston.

* * *

C. A. Morris, formerly field superintendent of Humble Oil & Refining Co., at Wichita Falls, has been transferred to Cisco, in the general Ranger territory. A. M. Hepler, formerly of the Ardmore district, succeeds him at Wichita Falls.

* * *

M. H. Steig, formerly employed in geophysical work of the Mexican Gulf Oil Co., in the Tampico district, has been transferred to the Laredo territory of the Gulf Production Co.

J. B. Moncrief

Joe B. Moncrief, formerly in the production department of the old Marland Oil Co. of Texas, is now associated with his brother, W. A. (Alvin) Moncrief, in West Texas operations. They maintain offices on the Seventeenth floor of the W. T. Waggoner building, Fort Worth, drilling wells and otherwise engaging in leasing and operating activities.

* * *

Operations of the Landreth Production Co., in the Girvin district of Pecos county, West Texas, come under the direct supervision of H. H. Watson, superintendent, who divides this time between the field and the Midland district office.

* * *

Brit Cranfill of the Cranfill Bros. Oil Co., Dallas, returned home recently after visiting his family, who spent the summer on the Pacific Coast.

Frank Fowzer and G. E. Rhea

* * *

An accompanying snapshot taken at Wink, Texas, in the northern part of the Permian salt basin development area, shows Frank Fowzer, left, head of the Fowzer Boiler Works, and G. E. Rhea, tool pusher for the F. A. Book Drilling Co., at Wink. Mr. Fowzer maintains shops in various oil fields of West Texas. Mr. Rhea looks after all the tools operated in the territory by the Book firm.

* * *

Gus Buttron, formerly station engineer for the Mexican Gulf Oil Co., at Toteco, northern Vera Cruz, has been transferred to the Venezuela Gulf Oil Co., at Maracaibo. He had been connected with the Gulf in the Tampico district since 1920.

* * *

A. W. Clayton, chief clerk in the pipeline department of the Mexican Gulf Oil Co., at Tampico, has been spending his vacation in Pinckneyville, Illinois.

* * *

John A. Deering of Houston, an individual producer in Gulf Coastal fields, also operates the Traders Oil Co., of which he is president, and the Lincoln Oil Co., of which he is treasurer. He has been active in the oil industry since 1917, when he gave up cattle ranching in Kansas and West Texas.

His first connection with oil was in 1910 when he drilled wildcat tests in the Toyah Basin region of West Texas. These proving unsuccessful, he returned to cattle raising. His principal success as a producer has been in the salt dome region of South Texas. He was born in Caldwell, Kansas, in 1880, receiving his education in the Caldwell High School and the University of Kansas.

John Gibsone of Tampico, manager of the Compania Petrolera "La Totanaca," S. A., has confirmed the acquisition of approximately 20,000 hectares of potential oil land in the Papantla region, between the Cazones and the Tecilutla rivers. An active drilling campaign is contemplated.

* * *

H. W. Haight, in charge of torsion balance work for the Transcontinental Petroleum Co., subsidiary of Standard Oil Co. of New Jersey, in Tampico territory, is spending a two months' vacation in Colorado.

* * *

Probably the most important requisite of the successful pipeliner, according to A. S. Bailey, vice president of The Texas Pipeline Co., is an infallible sense of humor.

"Since it is a fact that each job produces and rears its own particular type of workman," he says, "we have

John A. Deering

New Operating Methods

An average of two articles per issue of National Petroleum News, have discussed new operating methods and solutions to problems facing operators in the oil fields.

What operators are doing to cut costs, new methods and ingenious devices for more efficient work, and other features, are included.

Here are 74 that have appeared since the first of the year for your file reference:

1929

How ultimate recovery is influenced by delayed development Oct 2, p. 65
Chain driven rig fronts successful Sept. 25, p. 133
Handling salt water disposal problems Sept. 11, p. 67
How Gulf Coast wells are drilled by Rio Bravo Sept. 11, p. 69
Protective pipe line coatings suggested Sept. 11, p. 53
Weighing and counterbalancing aid in efficient pumping Sept. 11, p. 57
Tension is test of transmission power in belting Sept. 4, p. 63
Temporary furnace aids welder in preheating castings Sept. 4, p. 67
Casing weight and strength important in underreaming Aug. 28, p. 68
Decline curves tell when wells should be cleaned Aug. 28, p. 58
Success of repressuring in Burbank discussed Aug. 21, p. 37
Pumping deep crooked wells discussed Aug. 21, p. 38
Valve travel in deep well pumping Aug. 14, p. 59
Sand testers check formation without string of casing Aug. 7, p. 65
Kettleman Hills develops science of deep well drilling July 31, p. 49
Economical operation of small wells July 31, p. 60
Clean-out methods in Tonkawa discussed July 24, p. 32
Warning bell rings when engine stops July 24, p. 61
Filling shot hole with gravel eliminates sand and cavings July 17, p. 69
Comments on Dr. Haseman's well spacing methods July 17, p. 74
Cementing to forestall well troubles July 10, p. 41
Larger oil strings for Kettleman Hills casing July 10, p. 39
Pure water requisite for mixing oil field concrete July 10, p. 58
Economies in small well production July 17, p. 64; July 10, p. 61
Oklahoma City pool has peculiar operating problems July 3, p. 36
Gas lift practice of 15 companies in Seminole June 26, p. 62; June 19, p. 57
Internal combustion engines drive rotary rig June 26, p. 43
Oil/water separator made of old casing June 19, p. 65
Old time bailing plan discarded at Bradford June 19, p. 70
Simplified method of gaging working barrels June 19, p. 40
Clamp lengthens life of oil field belts June 19, p. 66
Back pressure on pumping helpful June 19, p. 49
Oil well shooting practices discussed June 12, p. 40
Straight hole drilling in Seminole June 12, p. 56; June 5, p. 37
No economies in vacuum reduction in Glenn pool June 5, p. 59
Scientific well spacing for over production June 5, p. 63
Bradford water drive speeds as technique improves May 29, p. 50
Oil-water separator devised May 15, p. 68
Vertical holes possible only thru gravity May 15, p. 71
Oil mining in Alsace, Wietze, etc. May 15, p. 72
Formula method for well spacing & rate of production. May 8, p. 59
Automatic water supply for gas lift. May 1, p. 64
Home-made roller bearing stops rod kinking May 1, p. 66
Regulation of "beans" increases output May 1, p. 59
Inert gas as fire protection in concrete reservoirs. Apr. 24, p. 59
Oil field emulsions July 3, p. 53; May15 , p. 61 April 17, p. 59 March 27, p. 51
How to keep holes straight April 10, p. 63
Kansas experiments with rotary successful April 3, p. 63
A. P. I. studies crooked holes April 3, p. 29
Wells drilled straight slowly reach sand faster April 3, p. 51
Large savings from low-pressure separation of gas oil March 20, p. 200
Oil well reclaimed with home-made mudding outfit March 20, p. 212
Individual well record keeps leases profitable March 13, p. 59
Alcohol keeps gas lift lines open March 13, p. 66
Perfects method for breaking out air-lift wells March 6, p. 64
Automatic features on lease save money Feb. 20, p. 50
Cheaper lifting, better recovery sought in repressuring Feb. 13, p. 34
Operators to pay $50,000 for water disposal Feb. 13, p. 68
Method for surveying hole deviation Feb. 13, p. 59
Cuts expense by removing mud from water Feb. 6, p. 55
Economics of pipe line pumping Feb. 6, p. 54
Pulsing air-gas cuts repressuring hazards Jan. 30, p. 60
Engineering makes faster drilling in Seminole Jan. 9, p. 62
Discusses drilling improvements Jan. 9, p. 67
Repressure equipment cost returned quickly by lease Jan. 2, p. 29
Barrel pumps save oil at drilling wells Jan. 2, p. 52
Generates own power in Little River Jan. 2, p. 52
Shale carrier removes heavy cuttings from rotary mud Jan. 2, p. 51

Back copies of any of the above issues are 25c a copy. On issues that are exhausted, photostats will be furnished at 40c per page. Libraries in the larger cities generally keep back files of National Petroleum News complete.

National Petroleum News

Main Office: 1213 West Third St. ***Cleveland, Ohio***

A. S. Bailey

only to glance at the job to get a fairly accurate picture of the type of man habitually found in pipeline camps.

"The first requisite is a constitution impervious to heat, cold, rain, mud; lack of sleep, baths and barber shops; cold meals and hot ones. The second demand is that, having satisfied the first with equanimity, he must be able to work under any and all of these conditions and like it."

Mr. Bailey made his observations in the course of an article appearing in the company organ, The Texaco Star, describing work on The Texas Pipeline Co.'s recently completed trunk system from the Permian salt basin province of West Texas and southeastern New Mexico to the Gulf Coast. The combination 10 and 12-inch system is capable of handling 50,000 barrels of crude daily when requirements permit its operation to capacity.

* * *

Three commissioners of District No. 1, which includes Los Angeles Basin territory, have been re-elected under the law which provides for a group to adjust disputes between operators and the California State Mining Bureau. The three re-elected for three year terms are Frank F. Hill, manager of field operations, Union Oil Co. of California; Len B. Little, Standard Oil Co. of California; and A. S. (Doc) Hayes, General Petroleum Corp. Other members of the commission serving unexpired terms are J. A. Jones of the Associated Oil Co., and J. U. Stair of the Shell Oil Co. (California).

South Dome Kettleman Hills Well Producing Water at 7000 Ft.

LOS ANGELES, Oct. 12

SANTA FE SPRINGS provided two surprises in the past week. O'Connell producers showed a daily average increase of about 1000 barrels, whereas Clarke zone producers showed a slight daily average decline.

These results, however, cannot be considered representative of the trend of the deep zones, for the approaching decline of production for certain O'Connell zone areas is indicated by the encroachment of edge water in the Union Bell No. 36. This well was completed during the week with a cut of 29 per cent. In the same zone, The Texas Co.'s Baldwin No. 4 decreased production by an average of about 250 barrels daily and the Associated Oil Co.'s Dewenter No. 8 decreased by 125 barrels.

Notwithstanding this present slight decline in the Clarke output, production from that zone is expected to rise steadily for the next two months, with a peak of about 125,000 barrels daily at about the end of the year.

Standard Oil Co. was the dominant operator in the important Clarke zone. With an average production per well of 2199 barrels, its 17 wells gave it a total Clarke output of 37,387 barrels daily. None of the other major companies approached the Standard's daily average, although minor companies with 13 wells between them had an average of 2249 barrels.

Ohio Oil Co.'s Smith No. 1 on the South Dome of Kettleman Hills has proved a great disappointment. After giving such indications of production that the company was led to install gas traps and storage tanks, it suddenly blew in as a hot-water well. It is now reported to be producing about 15,000 barrels of water daily from a depth of 7000 feet.

Field engineers are not agreed as to the source of the water. The theory has been advanced that through their desire to avoid any danger of a blow out, the crew muddied off the productive formations. Although this attitude is apparently supported by the showings encountered, the company is reported to be preparing to kill the well and drill deeper.

Shell Oil Co.'s deep test at Signal Hill, Nesa No. 11, is standing cemented at 9144 feet, with the bottom of the hole at 9280 feet.

Although leasing and drilling activity continues at Potrero, geologists question the probability that the field will have important developments. Geo. F. Getty's Parker No. 1, which came in last week for an initial production of 2000 barrels, is now producing only about 200 barrels.

Much mystery surrounds the General Petroleum Corp.'s wildcat well about eight miles west of Elwood, and the company has been very reticent in giving out information about it. According to reports, the well was originally drilled to 1292 feet, later deepened to 1348 feet, and now pumping 150 barrels of low-gravity oil from 1320 feet.

Texas Conservation Chairman Dead

HOUSTON, Oct. 12.—Last rites for Clarence E. Gilmore, veteran chairman of the Railroad Commission of Texas, were held at Wills Point, his boyhood home, Oct. 12. He had died suddenly, Oct. 10, at Austin, of valvular heart disease. Principal services were held at Austin, Oct. 11.

Judge Gilmore was widely known in the petroleum industry for his cooperation in stabilization work through the railroad commission, which administers the state's conservation laws. His early life was spent as a teacher, printer, editor and publisher before taking up the law and finally entering politics.

Scouts Plan Field Trip To Study Formations

TULSA, Oct. 12.—A two-day trip into the Arbuckle Mountain country of southern Oklahoma will be conducted Oct. 25 and 26 by the Mid-Continent Oil Scouts and Land Men's Association, it was decided by association executives meeting in Tulsa, Oct. 11. The purpose of the trip is to familiarize scouts and others who go with the principal formations found in drilling such territory as Seminole, all these formations being exposed in the Arbuckle country.

Contractors and drillers are urged to join the party, which will assemble in Sulphur, Okla., Oct. 25. It is the idea of the sponsors of the tour that a visual knowledge of the formations will enable them to keep better logs and to understand better the complexities of the section from the Hunton formation on down.

The party will leave the Artesian Hotel, Sulphur, about 1 p.m. the first day. The night will be spent in Sulphur and the second day will also be spent in the field. Several geologists will accompany the party, which will be divided into groups, and close-up instructions will thus be provided. It is probable that this will be made an annual affair. About 200 are expected to go this year.

Information to interested persons will be supplied by the scouts in the various districts. Names of those who will supply details by mail are C. W. Michaels, Shaffer Oil & Refining Co., Okmulgee, Okla.; Ralph Walkingstick, Tidal Oil Co., Shawnee, Okla.; D. D. Thompson, Atlantic Oil Producing Co., Shawnee, and C. E. Savage, Carter Oil Co., Tulsa.

Believes Flooding Method Sound

PITTSBURGH, Oct. 11.—That present methods of water flooding in the Bradford oil field are economically sound and that the methods may be practical for other depleted fields is the belief of Dr. Charles R. Fettke, professor of geology and minerology at the engineering college, Carnegie Institute of Technology.

A detailed report of the finds will be published as soon as data has been worked over. Dr. Fettke, with Prof. W. A. Copeland and W. H. Seifert, of Carnegie Tech, have been studying the flooding methods for four years under auspices of the Pennsylvania Topographic and Geologic Survey to determine why the process has been successful in the Pennsylvania field and not in other fields.

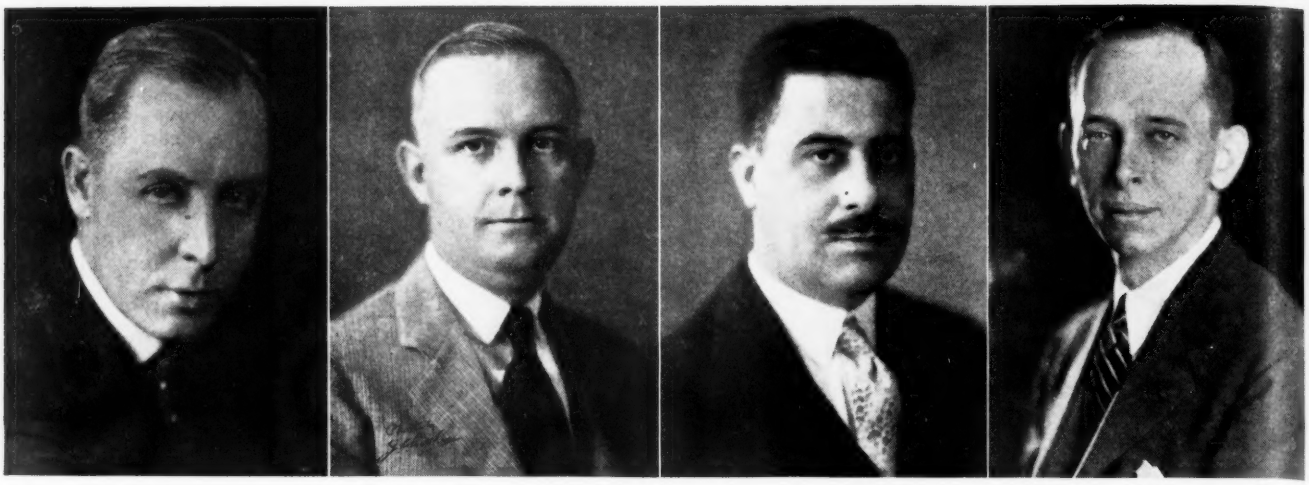
Depression Grows in Sour Lake Field

HOUSTON, Oct. 12.—Fissures that began appearing in the Sour Lake salt dome oil field, Oct. 8, continued to spread throughout the week and had extended over an area of approximately 50 acres. Daily average production, which previously approximated 2650 barrels, had decreased about 30 per cent. Nearly all wells in the field, which have been producing on a settled basis for years, were affected.

It was believed that the immense amount of sand taken out of the ground with oil production had weakened the surface formations, causing them to slump and form the crater. No prediction is possible as to the depth or width the depression will assume. It is now 150 feet deep at the center.

Similar sinkings of surface formations have been previously recorded in the Goose Creek and Batson oil fields in the past and at the Sulphur, La., salt dome, where millions of tons of crude sulfur were extracted in the past.

The four principal leases affected so far at Sour Lake are the Texas, the Minor, the Gilbert and the H. M. Terry.



E. I. Hanlon *M. F. Waters* *D. E. Buchanan* *J. H. Boyle*

New Supply Company Formed in Tulsa

TULSA, Oct. 12.—A new supply company, styled Hanlon-Waters, Inc., was announced the past week, with offices in Tulsa. Four men, well known in the Mid-Continent oil industry, especially in natural gasoline and refinery branches, incorporated the firm.

E. I. Hanlon is chairman of the board; M. F. Waters, president; D. E. Buchanan, vice-president and J. H. Boyle, secretary and treasurer. Initially, the new firm will take over oil field distribution for the products of the Fisher Governor Co., Victaulic Co. of America and the Reed Air Filter Co. General offices and warehouse will be maintained at First street and Detroit, Tulsa.

All have been for years identified with natural gasoline, refining and the supply trade. Mr. Buchanan was one time president of the Natural Gasoline Association of America.

Skelly On Magazine Cover

KANSAS CITY, Oct. 12.—An oil "appreciation" edition of the "Kansas Citian," weekly publication of the Chamber of Commerce of Kansas City, for Oct. 1 as a tribute to the oil industry and the International Petroleum Exposition.

A photograph of William G. Skelly, president of the Skelly Oil Co., appears on the cover. The number is devoted mainly to oil news and contains oil company and equipment manufacturers' advertisements, including those of the Security Petroleum Co., E. L. Miller Mfg. Co., Butler Mfg. Co., Battenfeld Grease & Oil Co., Standard Oil Co. of Indiana, California Pipe Line Machine Co., Nourse Oil Co., Inter-State Oil Co., White Eagle Oil & Refining Co., Skelly Oil Co. and A. J. Stevens Grease & Oil Co.

J. C. Halliburton, vice president of Southwest Air Fast Express (SAFE), who is with the Halliburton Oil Well Cementing Co., has an article on air travel and its use by business men.

Completions in California, Week Ended October 5, 1929

Long Beach

Company	Well No.	Location	Depth	Init. Prod.
Allied Pet. Corp.	Garrison 1	....	7220	530
Otis Hoyt	2	....	6944	1870
Sovereign Oil Co.	6	....	6860	145
Joseph Seeple	6	....	7200	(No esti.)
Sunset Pacific Oil	9	....	4480	60
Santa Fe Springs				
General Petroleum	Santa Fe 160C	....	7170	455
General Petroleum	Santa Fe 177D	....	6795	1060
General Petroleum	Santa Fe 212	....	8000	3100
Geo. F. Getty	27	....	7966	3500
Standard Oil	S W C 21	....	7768	3100
Standard Oil	S W C 24	....	7980	2770
L. T. Edwards	Meyer 1	....	8050	(Aband.)
Montebello				
St. Helens Pet.	Monterey 18	....	4056	400

Huntington Beach

Company	Well No.	Location	Depth	Init. Prod.
V. R. C. Wilbur	Twining 1	....	5000	150
Potrero				
York-Lockhart Oil Co.	Blinn 1	....	3856	800
Ventura Avenue				
Associated Oil	Lloyd 58	....	7745	1340
Maricopa Flats				
Hancock Oil Co.	Wallace 1	....	3100	650
Round Mountain				
Hern Hills Pet. Corp.	1	....	1575	800
Kern Front				
General Petroleum	Young 32	....	1990	120
Mount Poso Creek				
General Petroleum	Glide 15	....	1670	240
Summerland				
Lincoln Drilling Co.	Williams 3	....	1555	200

Completions in North Louisiana and Arkansas, Week Ended October 10, 1929

Company	Well	Location	Depth	Yield
Louisiana—Bossier Parish—Elm Grove				
Jones Chemical Co.	Fee No. 3	32-16-11	3095	salt water, abnd.
Caddo Parish—Pine Island				
Magnolia Pet. Co.	Levee Board No. 4	7-20-15	2313	25 bbls.
Caddo Parish—Dixie				
Palmer Corp	Hunter No. 1	8-19-14	2440	25 bbls.
Standard Oil Co. of La.	School Board No. 3	16-19-14	2453	200 bbls.
Gulf Ref. Co.	Hunter No. 4	17-19-14	2440	125 bbls.
DeSota Parish—Mansfield				
A. A. Fair et al.	Hamilton No. 1	1-12-13	2855	salt water, abnd.
LaSalle Parish—Urania				
Air Lift Oil Co.	M. O. P. No. 3	26-10-1E	1525	20 bbls.
Thompson Bros.	Sanders No. 1	27-10-1E	1625	dry, aband.
Montague Oil Co.	Zenoria Lbr. Co. No. 7	10-9-1E	1515	150 bbls.
Morehouse Parish—Monroe				
J. S. Harkness	Bowles No. 9	17-20-5E	2248	3M ft. gas
Richland Parish				
Magnolia Pet. Co.	F. B. Sartor No. 1	17-16-6E	2416	25M ft. gas
Palmer Corp	La. Pet. Co. No. 1	22-17-6E	2478	3½M ft. gas
Palmer Corp	Marshafield No. 4	20-17-6E	2444	52 M ft. gas
Palmer Corp	Mulhern No. 1	29-17-6E	2445	50M ft. gas
Sabine Parish—Pelican				
Ark. Fuel Oil Co.	Horne No. 2	33-10-12	3217	125 bbls.
Magnolia Pet. Co.	E. E. Hall No. 3	33-10-12	3246	25 bbls.
Sabine Parish—Zwolle				
R. L. Gay, Trustee	Bowman-Hicks No. 4	14-7-14	2350	75 bbls.
Webster Parish—Shongaloo				
P. Hudson	Slack No. 1	1-22-11	2747	30 bbls.
Arkansas—Columbia County				
Helena O & G Co.	Pickler No. 1	19-19-22	2795	dry, aband.
Ouachita County—Mount Holly				
Flaucher et al.	Bucks No. 1	7-15-17	2475	dry, aband.
Ouachita County—Smackover				
Ark. Nat. Gas Corp.	Avera No. 1	35-15-15	1998	30 bbls.
Union County—Smackover				
E. L. Chapman	Nettie Purifoy No. 1	2-16-16	2147	10 bbls.
Union County—Rainbow City				
Gann et al.	Warren No. 1	10-17-14	1700	salt water, abd.

Completions in Texas, Week Ended October 12, 1929

NORTH CENTRAL AND EAST CENTRAL

Anderson County

Company	Well Farm	Survey	Sec. & Blk.	Depth	Init. Prod.
Humble	3-Todd	Clark		3861-3890	40
Humble	4-Holloway	Roberts		3606-3612	4M

Brown County

Buder	3-Munselle	Arenbeck		1161-1163	20
DeMont	9-Newton	Jones	Blk-282	160-163	4
Humble	16-Kilgore	Delgado	Sec-3 Blk-789	1194-1195	54
Owens Inc. et al.	4-Cannon	Arenbeck	Blk-3	1135-1146	30
Smith	6-George	Chaddick		1289-1315	300
Texas	4-Kesler	Kelser	Sec-42	1269-1292	254
Texas	5-Kesler	Kesler	Sec-42	1285-1308	330
Amerada	3-Edmondson	Townsend		T.D. 1377	Dry
Geisendorf et al.	1-Wise	Montez et al.		T.D. 700	Dry
Lloyd	26-Collier	Smith	Blk-139	T.D. 444	Dry

Callahan County

Holmes	1-Ramsey	Jones	Sec-2	T.D. 486	Dry
Beams	7-Jackson	ET	Sec-14	921-929	10
Groginski	1-Baggry	Anderson		288-315	.3M
Young Bros. et al.	19-Hickman	BBB&C	Sec-148	720-732	10

Cherokee County

Humble	4-Elliott et al.	Windsor		3641-3646	35 (1 Hr.)

Coleman County

Taylor-Link	3-McClure	ET	Sec-105	T.D. 675	Dry

Eastland County

Texas-Pacific	5-Higginbotham	H&TC	Sec-53 Blk-4	T.D. 4106	Dry
Murray et al.	1-Evans	H&TC	Sec-30 Blk-2	1278-1306	.4M

Falls County

Killam-Phillips	3-Jones	Sanchez		T.D. 1712	Dry

Hill County

Harper-Laston	1-Jones	Graves		692-700	20

Jack County

Texas et al.	1-Shanafelt	Hughson		4569-4579	605
Combs-Rogers	1-Plemmons	Smith		670-677	5

Milam County

Chapman et al.	1-Johnson	Acosta		T.D. 1374	Dry

Runnels County

Herbert-Vacuum	1-Curry	Carroll	Blk-284	T.D. 3005	Dry

Shackleford County

Kiser-Grone	1-Jenkins	BAL	Sec-42	T.D. 900	Dry
Murry Bros. et al.	1-Newell	T&P	Sec-11 Blk-12	T.D. 1543	Dry
Moutray	1-Jenkins	T&P	Sec-26 Blk-12	T.D. 1339	Dry
Roeser-Pendleton	1-Nail	ET	Sec-119	T.D. 2020	Dry

Throckmorton County

Woodson et al.	4-Osereash	ET	Sec-960	T.D. 1313	Dry

NORTH TEXAS

Archer County

Peacock-Tedford	1-Williams	Swing		564-568	10
Bridwell	3-Falls Co. Sch. Ld.	FCSL	Blk-8	1122-1135	15
Gwynn	6-Thompson	ATNCL	Sec-20 Blk-16	T.D. 1602	Dry

Baylor County

Humphreys et al.	1-Sycoro	Loggins		T.D. 1461	Dry

Cooke County

Lloyd	1-Newman	Collingsworth		T.D. 3008	Dry
Shell	5-Field et al.	Stanley		1193-1197	70

Cottle County

The Exploration Co.	1-Ranchie	D&W	Sec-4	T.D. 4011	Dry

Wichita County

Company	Well Farm	Survey	Sec. & Blk.	Depth	Init. Prod.
Donnell	1-Honaker	Cole		T.D. 1680	Dry
Comac Drlg. et al.	10-Bishop	Netherly		1775-1786	47
Empire	22-Fordyce	H&TB	Sec-9	1494-1506	12
HiLand	2-Chilson et al.	DCSL	League-4 Blk-9	1803-1810	84
Hunter	7-Waggoner	George	Blk-1	1470-1489	55
Texas	11-Waggoner Bros.	George	Blk-28-29	1274-1291	20
Texas	12-Waggoner Bros.	George	Blk-28	1270-1293	70

Wilbarger County

Burton	I-5-Waggoner	MEP&P	Sec-40	1867-1877	40
Cosden	D2-Waggoner	H&TC	Sec-35 Blk-2	2648-2669	419
Empire	B21-Waggoner	H&TC	Sec-32 Blk-4	2298-2300	275
Empire	C14-Waggoner	H&TC	Sec-25 Blk-4	1892-1895	242
Phillips	6-Waggoner	H&TC	Sec-18 Blk-4	2388-2395	145
Staley-Wynne	G13-Waggoner	H&TC	Sec-32 Blk-4	2309-2316	142
Staley-Wynne	B2-Waggoner	H&TC	Sec-26 Blk-4	2393-2432	70
Derby	D1-Waggoner	H&TC	Sec-8 Blk-4	T.D. 2493	Dry

Young County

Panhandle	1-Kunkel	BBB&C	Sec-4	T.D. 1190	Dry
Sharp et al.	1-Edwards	TE&L	Sec-71	T.D. 1300	Dry
Sinor et al.	1-Dickenson	TE&L	Sec-1949	T.D. 427	Dry

PANHANDLE

Carson County

Champlin	4-McConell	I&GN	Sec-67 Blk-4	3087-3093	50

Gray County

Mordyan	2-Davis	ACH&B	Sec-8 Blk-1	2712-2726	726
Independent	1-Hollenbeck	I&GN	Sec-176 Blk-3	T.D. 3470	71M
Champlin	2-Faulkner	H&GN	Sec-30 Blk B-2	2857-2865	150
Adams	3-Morse	H&GN	Sec-3 Blk-26	2440-2450	150
Wilcox	9-Wilcox et al.	I&GN	Sec-35 Blk-3	2950-2956	240
Thorpe	1-Finley	Chaney		2965-3016	243
Texas	4-Davis	ACH&B	Sec-8 Blk-1	2680-2702	928

Hutchinson County

Midwest Explor.	2-Moore	I&GN	Sec-125 Blk-4	3005-3100	245
McMan	2-Sanford	H&TC	Sec-83 Blk-46	3130-3153	10M

Wheeler County

Taughan et al.	4-Ackley	H&GN	Sec-4 Blk-27	1800-1990	31M
Texas	2-Sewell	H&GN	Sec-1 Blk-24	1900-1901	17M
Johnston et al.	1-Hall	H&GN	Sec-49 Blk-17	1830-1835	26M
Angus et al.	1-Linkey	H&GN	Sec-126 Blk-23	2035-2127	40M

WEST TEXAS

Crane County

Duffey	6-Cowden	CCSD	Sec-18 Blk-X	T.D. 985	Dry

Fisher County

Roeser-Pendleton-Amerada	1-Hought	BBB&C	Sec-191 Blk-1	3122-2125	1321/2

Glasscock County

Schermerhorn	1-Phillips	T&P	Sec-23 Blk-33	2150-2291	1400

Hall County

Rio Bravo	1-Hughes	Stephens	Sec-39 Blk-H	T.D. 5232	Dry

Howard County

Howard	2-Kloh et al.	T&P	Sec-5 Blk-32	2325-2330	60
Ward	12-Roberts	W&NW	Sec-137 Blk-29	1365-1378	85
Godley	16-Hooks	W&NW	Sec-140 Blk-29	1850-1872	165
Continental	5-Chalk	W&NW	Sec-140 Blk-29	1901-1905	75

Menard County

Cromwell	1-Winslow	T&NO	Sec-32	T.D. 3208	Dry

Pecos County

Taylor-Link	3-Univ.	Univ.	Sec-31 Blk-16	1589-1622	133/4

Completions in Oklahoma and Kansas, Week Ended October 12, 1929

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Ven-Mex	2	SW SE NW 30-1-3 W	2533-2655	195

Cotton County

Shasta	3	NW NE NE 2-2-10 W	2155-2158	160
Franklin	3	SEc SW SE 35-1-10 W	2154-2181	145
Scott-Arrington	1	SEc NW SE 26-1-10 W	T.D. 2303	Dry
Bridwell et al.	1	NEc SE SE NW 17-1-11 W	T.D. 2565	Dry

Creek County

Ireland et al.	1	CNL S½ 3-17-10 E	T.D. 1677	Dry
Phillips	2	NWc NE NE 20-19-9 E	2425-2447	20
Magnolia	21	CNL NW NE 7-18-7 E	2521-2596	40
Magnolia	8	NEc NW SE 8-18-7 E	2573-2646	10
Texas Pacific	8	SWc SE NE 21-17-9 E	2449-2470	10
Central Com.	1	NEc 9-17-10 E	1051-1069	3M
Carter	9	SE NE NE 18-16-9 E	3008-3034	910
Mid-Cont. et al.	11	SE NE NE 26-16-9 E	2904-2911	20

Grady County

Okla. Natural	12	SW NE NE 23-5-8 W	1990-1993	8M

Grant County

Cons. Utility	2	C SW NE 35-28-3 W	4047-4085	8M

Kay County

Nehr	4	C SW NW 31-28-1 E	T.D. 903	.3M
Parrish et al.	4	SEc SW NW NE 36-28-1 W	T.D. 767	Dry

Logan County

Shell	10	NE NW SE 30-19-4 W	5950-6010	1785
Shell	9	SWc SE 30-19-4 W	5820-5970	2860
Shell	6	SE SW NE 30-19-4 W	6012-6022	2050

Muskogee County

R. & R. Drlg.	1	SEc 18-13-16 E	2141-2158	20
McMahon et al.	1	NWc SE NE 23-13-18 E	557-585	¼M
Jolly	1	SEc NW SW NW 35-15-18 E	T.D. 1157	Dry

Company	Well No.	Location	Depth	Init. Prod.
Western Drlg. & Electric	1	SEc NW SW NW 35-15-18 E	T.D. 1185	Dry
Dow et al.	1	SW SE SW 3-13-16 E	T.D. 1150	Dry

Okfuskee County

Umburn et al.	1	NWc SE NW 21-10-11 E	3054-3065	25
Superior	1	NE NW NE 29-9-10 E	T.D. 745	Dry

Okmulgee County

Edgerly et al.	1	NEc SE 28-15-13 E	1592-1602	5
Lambert	5	SEc NW 7-13-15 E	1224-1239	¾M
Wilder et al.	1	NWc 33-14-12 E	T.D. 3001	Dry

Osage County

I. T. I. O.	420	SWc NE 34-29-10 E	T.D. 532	Dry
Osage Gas Prod.	395	CSL NE SW 29-28-11 E	1414-1442	1¼M
Barnsdall et al.	5	NE SE SE 22-22-11 E	1626-1634	30
Okla. Power & Water	122	NEc SW SW SW 4-20-10 E	377-380	1M

Pawnee County

Capitol Hill	1	NEc SE 25-21-8 E	1085-1115	10
Seers et al.	5	CSL NE NW 35-20-9 E	1998-2039	130
Johnson	1	SEc NE 27-20-9 E	2132-2175	110
Adamson Jr.	6	SE SW NE 25-21-8 E	T.D. 1135	Dry
Superior	1	NE NW NE 20-20-9 E	T.D. 2765	Dry

Payne County

Comail	2	SW NE SW 9-19-5 E	T.D. 3802	Dry

Pottawatomie County

Wofford Drlg.	1	SWc 28-8-5 E	T.D. 4426	Dry
Stogner et al.	1	NWc 19-6-4 E	T.D. 3820	Dry
Commerce Dev.	1	SWc 18-6-4 E	T.D. 3895	Dry
McMan et al.	2	NW NE SW 9-8-5 E	4018-4028	650
Simms	5	SW NW NE 19-6-4 E	3627-3630	295

(Continued on Page 54)

Completions in Oklahoma and Kansas, Week Ended October 12, 1929

(*Continued from Page 53*)

Company	Well No.	Location	Depth	Init. Prod.
Simms	4	SE NW NE 19-6-4 E	3627-3668	120
Slick et al	1	NW SW NW 16-7-4 E	4017-4132	800
Atlantic et al	3	SEc NE 16-7-4 E	4102-4228	420
Magnolia	2	SW NW SW 13-7-4 E	4154-4240	200
Indep. et al	1	SEc SW 35-8-4 E	4090-4145	240
I. T. I. O.	2	SW SE SE 35-8-4 E	4130-4232	123
Empire	1	SW SE SW 36-8-4 E	4187-4193	360
		Pontotoc County		
Ramsey et al	8	SE NE SE 18-5-8 E	2560-2624	450
		Seminole County		
Mid-Continent	1	NE SE NE 8-7-7 E	T.D. 4223	Dry
Magnolia	7	NE SE NE 22-7-6 E	T.D. 3160	Dry
Pure	1	SW NW NW 28-9-6 E	T.D. 4650	Dry
Continental	1	SE SW NW 18-9-6 E	T.D. 4363	Dry
I. T. I. O.	1	SW NW NE 25-10-6 E	T.D. 4118	Dry
Indep. et al	1	SW SE NE 7-6-8 E	T.D. 4256	Dry
Pure	1	SW NW NE 13-6-7 E	T.D. 4365	Dry
Gypsy	6	NE SE NE 5-7-7 E	4238-4244	1065
Empire	2	SW SE NW 24-7-6 E	3105-3128	30M
Shell	4	NW NE NW 23-7-6 E	3110-3160	385
Pure	12	SE NW NE 23-7-6 E	3187-3208	470
Independent	7	SW NE SE 14-7-6 E	3208-3234	22M
Magnolia	3	NW SW NE 4-8-7 E	3240-3282	60
Gypsy et al	6	SE NE SE 18-9-7 E	4244-4258	990
Gypsy et al	4	NE SW SE 18-9-6 E	4256-4266	2750
Amerada	2	NW SW NW 17-9-6 E	4200-4222	2615
Magnolia	2	NEc SE 24-9-5 E	4151-4166	758
Twin State	1	SE SW NE 22-9-5 E	4316-4346	8
Sunray et al	3	NWc SW 24-5-7 E	4192-4203	140
		Stephens County		
Magnolia	1	SWc NW NW 33-1-8 W	1862-1867	4M
Ellis Drlg	7	NEc SE SW NW 34-1-8 W	2209-2211	25
Pace et al	3	NWc SE SW 2-2-8 W	2160-2164	45
Magnolia	8	NWc NE SW 25-1-9 W	T.D. 2460	Dry
Franklin	2	SW NW NE 24-1-4 W	T.D. 3300	Dry
		KANSAS		
		Butler County		
Empire	86	SW NW NE 20-26-5 E	2467-2555	175
Empire	87	NE NW NW 20-26-5 E	2484-2497	75
Empire	16	NW SW NE 18-26-5 E	2592-2622	100
		Chase County		
Sinclair	1	SEc 13-21-9 E	T.D. 2548	Dry
		Coffey County		
Ellis-Huff	1	NWc SE 13-23-14 E	1612-1623	25
		Cowley County		
Texas	15	NE SW NE 6-31-6 E	2866-2876	10
		Greenwood County		
Empire	3	NE NW SW 36-23-11 E	1797-1870	20
Christy-McCullough	1	NW NE SW 25-27-8 E	1120-1127	3M
Gordan et al	1	SW SE SE 3-22-11 E	T.D. 2010	Dry
Loy-Cary-Simmons	1	NEc 14-23-11 E	T.D. 1991	Dry
		Harvey County		
Payne et al	1	NE NW SE 16-24-1 E	T.D. 3460	Dry
Roth-Faurot et al	1	NWc 26-22-1 W	T.D. 3505	Dry
		Kiowa County		
British American	1	NEc 35-27-17 W	T.D. 5040	Dry
		Lyon County		
Gordan-Staats	1	NW NE SW 31-16-10 E	T.D. 500	Dry
Phillips	1	SE NE SW 27-21-10 E	T.D. 2188	Dry
Phillips	1	SWc 20-21-12 E	T.D. 2201	Dry
		Marion County		
Davis et al	1	SEc NE 1-19-1 E	T.D. 3320	Dry
Davis et al	3	SE SW NW 7-19-3 E	T.D. 2905	Dry
		McPherson County		
Marland	1	NE SW NE 36-18-4 W	T.D. 3729	Dry
Shell	2	SEc SW 1-20-2 W	2976-2981	2210
		Morris County		
Arrow	2	NEc NW 14-16-7 E	T.D. 1465	Dry
		Russell County		
Burbank et al	11	NE SW NE 32-13-15 W	3047-3055	OWD 100
Midwest Explor	4	NE NW SW 32-13-15 W	3329-3334	100
		Sedgwick County		
Shell	1	NW NE NE 22-26-2 E	3301-3302	485
Shell	1	SEc SW NW SW 21-28-1 E	3092-3102	240
Marland	1	NE SW SW 30-27-2 E	2955-2970	65
Shell	1	NW NE NW 22-26-2 E	T.D. 3249	Dry
Lario	1	NEc SW 27-29-1 W	T.D. 3860	Dry
		Sumner County		
Carter et al	1	SWc NW 26-34-2 E	3486-3496	14

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended October 12, 1929

OKLAHOMA

Company	Well No. & Farm	Location
	Cotton County	
Shasta	5-Slogan	SWc NW NE NE 2-2-10 W
Franklin	1-Bandy	NWc 4-4-10 W
	Creek County	
Link	4-Freeman	NE SW NE 33-18-7 E
Sinclair	24-Dunson	CSL SW SE 33-17-7 E OWD
Texas Pacific	1-Harjoche	SEc NE 21-17-9 E OWD
Irelan	3-Hays	NWc 10-17-10 E
Ice	8-Fulsom	CWL SW SW 13-17-10 E
Texas Pacific	8-Beaver	SW NW NW 17-16-9 E OWD
Texas	1-Sewell	NW SW NW 26-16-10 E
Curtis	1-Allen	SE NE NE 27-16-10 E
	Garfield County	
Continental et al	1-Brown	CNL SW 10-20-4 W
	Grady County	
Okla. Gas Utilities	1-Warren	SEc NE NW NW 36-4-8 W
Okla. Public Serv.	5-Dryden	NW NE SE 35-5-8 W
	Hughes County	
McGee Bros	1-Bird	SW SE NW 30-8-12 E
	Jefferson County	
Bridwell	1-Seay	SEc 29-6-5 W
	Kay County	
Blackwell	2-Liegrote	NW SE NE 29-25-1 W
Nehr	4-Paden	C SW NW 31-28-1 E
Parrish et al	4-School Land	SEc SW NW NE 36-28-1 W
	Kiowa County	
Eshelman et al	1-School	NEc 13-6-17 W
Eshelman et al	3-Roster	SEc NE SW NW 18-6-16 W
	Lincoln County	
Continental	2-School Land	NEc NW 36-17-3 E
	McIntosh County	
Jennings Bros	1-Crabtree	SEc NE SW 31-10-14 E
	Muskogee County	
Aggas	1-Wheat	SE NE SW 28-16-15 E OWD
Paul-Morgan	4-Sango	C NE NW 17-15-17 E
Fortwangler et al	1-Jackson	NEc SE SE 19-15-17 E
Mussellem	2-Campbell	SEc NW SE SE 33-14-19 E
Muskogee Nat. Gas	3-Smith	NW SE SE 18-13-19 E
Mazada	4-Jackson	SWc NE SE NW 8-13-16 E
	Okfuskee County	
Eagle Pitcher Lead	3-Tiger	SEc 35-11-11 E
Champlin	3-Parrish	NWc SW SW 14-11-11 E
Hazlett et al	3-Johnson	CEL NE 3-10-11 E
Jarvis-Holm	2-Buckley	NWc NE NW 21-10-11 E
	Oklahoma County	
I. T. I. O. et al	3-Farley	NEc NW 19-11-2 W
I. T. I. O. et al	2-Hiddleston	NWc NE 19-11-2 W
I. T. I. O. et al	1-Butterfield	SE NE NE 11-11-3 W
Franklin et al	6-Lowery	SE NW NW 12-11-3 W
Franklin et al	7-Lowery	CEL NW 12-11-3 W
I. T. I. O. et al	2-Banta	NW SW SE 18-11-2 W
I. T. I. O. et al	1-Banta	SWc SE 18-11-2 W
Coline	6-Warren	NE SE SW 18-11-2 W
Coline	5-Warren	SEc SW 18-11-2 W
	Okmulgee County	
Miller et al	1-Powell	NEc 31-16-12 E
Rebold	1-Brooks	SWc NE 6-13-13 E OWD
	Osage County	
Brown	6	SWc NE NW 7-24-8 E
Peters-Prod. & Ref.	4	SW NW NE 27-27-11 E
Presbury et al	3	SEc NE NE NW 35-24-8 E
Okla. Power & Water	123	SEc SW 4-20-10 E
	Pawnee County	
Adamson	7-Thomas	SWc NE 25-21-8 E
Kerr et al	1-McCoy	NW SW NW 21-20-9 E
	Payne County	
Shaffer	4-Little Chief	SEc NW NE 4-18-5 E
Transcontinental	3-Lincoln	NE NW SE 4-18-5 E
Shaffer	3-Little Chief	NE NW NE 4-18-5 E
	Pittsburgh County	
Colton-Lester	1-Gumm	NE SE SE 10-7-18 E
Lester et al	1-Carney	NEc NW 15-7-18 E
	Pontotoc County	
Westheimer-Daube	1-Hammer	NEc NW 12-4-7 E
Delaney-King	1-Smith	SEc NE 29-5-8 E
Independent	1-Jones	SWc 8-5-5 E
Benedum-Trees	1-Bumpers	NW NE NW 33-5-5 E
La Salle	1-Malley	NE SE SE 30-5-5 E
La Salle	1-Skelly	NW SE SE 30-5-5 E
Continental	1-Newby	SWc 18-5-5 E
	Pottawatomie County	
Sinclair	2-Coley	NE SE SE 24-7-4 E OWD
Magnolia	4-Risenhoover	SEc NE 14-7-4 E OWD
Wofford Drlg	1-McGee	NE NW SE 4-7-4 E
Indep. et al	2-Weldfelt	SE NW NW 2-7-4 E
Blackwell	3-Cherry	NW NE NE 25-7-4 E
Independent	2-Mull	SW SE SW 35-8-4 E
I. T. I. O.	1-Brandenburg	SE SW SW 35-8-4 E
Texas	1-Goodin	SE NE SW 35-8-4 E
	Seminole County	
Empire et al	1-Johnson	SWc NE 3-7-6 E
Barnsdall	7-Noble	SE SW SW 18-9-6 E
Texas	4-Magruder	NE NW NW 19-9-6 E
Skelly	1-Lusty	SW SE NE 13-5-7 E
Skelly-Mid-Kans	1-Buykin	SE SW SE 14-5-7 E
Reiter-Foster	1-Robertson	SEc SW 30-7-6 E
Empire	3-Charty	NE SE NW 24-7-6 E
Amerada-Dixie	1-Billington	NW SW NE 24-7-6 E
Barnsdall	1-Factor	NWc SE 13-7-6 E
I. T. I. O. et al	1-Blankenship	SW SE SE 10-8-5 E
McMan	1-Campbell	NW SE NW 20-9-6 E
Carter	1-Campbell	NWc SW 20-9-6 E
Indep.-Atlantic	3-Fixico	NE SW NW 20-9-6 E
Indep.-Atlantic	2-Fixico	SWc NW 20-9-6 E
Sinclair	8-Nichols	NW NE NW 19-9-6 E
Sinclair	7-Nichols	SW NE NW 19-9-6 E
Barnsdall	6-Noble	SW SE SW 18-9-6 E
Carter	3-Harber	SW SE SE 7-9-6 E
Sinclair	2-Thompson	SE NE SW 18-9-7 E
Cont.-Sinclair	3-Perry	SW NE SW 18-9-7 E
Gypsy	4-Maley	SE NW NW 20-9-6 E
Amerada-Dixie	2-Fullerton	NEc SE 19-9-6 E
Indep.-White Eagle	7-Davis	SWc SE 2-7-6 E
Indep.-White Eagle	6-Davis	NE SW SE 2-7-6 E
	Stephens County	
Denver-Whchita Falls P. L.	1-Allen	NEc SE 35-1-9 W

(*Continued on Page 55*)

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended October 12, 1929

(Continued from Page 54)

Company	Well No. & Farm	Location	
Armour et al.	5-Spears	NWc SW 32-1-8 W	
Ellis Drlg.	8-Nigh	SEc SW NW 34-1-8 W	
Ven-Mex et al.	3-Smith	SWc SE SW SE 35-1-8 W	
Magnolia	6-Marks	SEc NW NE SE 13-2-8 W	
Pace et al.	1-Andrea	NEc 24-2-8 W	
Mardum	1-Anderson	SEc 9-2-6 W	
Tooey-Long	1-Leftwitch	NWc SW NW NW 11-3-5 W	
Tulsa County			
Union Drlg.	1-Anthis	NEc NW NE 13-19-10 E	
Wagoner County			
Honer et al.	1-Nichols	NWc NE NW 35-18-17 E	
Western Drlg. & Equip.	1-Ross	SEc SW 15-16-19 E	
Cherokee Public Service	1-Marshall	SWc NE SE 35-16-17 E	OWD
Webb et al.	2-Smith	NEc SW 6-16-15 E	
KANSAS			
Butler County			
Valley-Osage	1-Sires	SEc 34-23-3 E	
Dixie	3-Stern	SE NW SE 28-27-6 E	
Empire	4-Hutchinson	NE SE NW 34-27-5 E	
Martin et al.	1-Flanagan	SW SE SW 28-27-3 E	
Empire	1-Marshall	NW NE SE 15-27-6 E	
Cowley County			
Blankenship	1-Marshall	SEc NW 36-30-6 E	
Independent	1-Swenson	SWc NW SW SE 15-32-4 E	OWD
Elk County			
Ramsey et al.	1-Ferguson	SWc SE 3-31-8 E	
Ford County			
McNabb-Bess Drlg. et al.	1-Fowler	C SE 26-27-22 W	
Greenwood County			
Empire	3-Patterson	NE SW SE 36-23-11 E	
Empire	2-Hillman	CWL NE NE 35-23-11 E	
Phillips	5-Beal	SE NE NE 28-23-11 E	
Dixie-Amerada	2-Ellis	SW NW NW 27-23-11 E	
Humble	6-Edwards	NE SE SE 21-23-11 E	
Independent	1-Beal	NEc NW 28-23-11 E	
Chisler-McCullough	1-Lewis	SWc NE 25-27-8 E	
Harvey County			
Marland	1-Chambers	NE SE NE 8-24-2 E	
Lyon County			
Sheedy et al.	4-Hughes	SW NW SW 19-21-10 E	
McPherson County			
Kansas	1-Otto	SWc NW 21-20-1 W	
Shell	1-Miller	SWc SE 1-20-2 W	
Shell	1-Holmes	NEc NW 12-20-2 W	
Rice County			
Producers & Refiners	1-Thompson	SEc NW 21-20-10 W	
Russell County			
Keys	11-Mermis	NE NW SW 33-13-15 W	
Sedgwick County			
Shell	3-Fischer	SW SE SE 15-26-2 E	
Plains	1-Corn	NWc SE SW 15-26-2 E	OWD
Shell	2-Borg	NW SW SW 14-26-2 E	
Shell	1-Erdwein	SWc 11-26-2 E	
Johnson	1-Peachey	SE SW SW 2-27-1 W	
Wentz	1-Moore	SEc NW 17-28-1 E	
Moore et al.	1-Schulte	NE SE NW 18-28-1 W	
Ramsey et al.	2-Evans	SWc 2-26-1 W	
Stevens County			
Argus	1-Hoffle	C SE 17-32-37 W	
Mangle	1-Youngren	C SE NW 24-32-39 W	

Company	Well No. & Farm	Location	Survey
TEXAS			
NORTH CENTRAL AND EAST CENTRAL			
Anderson County			
Humble	A3-Jones	.....	Roberts
Humble	B1-Gouger	.....	Trimmer
Brown County			
Buder	3-Kesler	Sec-42	Kesler
Buder	4-Kesler	Sec-42	Kesler
Bruce	1-Boyson	Sec-7	ET
Hening	1-Burnett	Sec-43	H&TB
Gordan	2-Cannon	Blk-3	Arenbeck
Smith	9-George	.....	Chaddick
De Mont	10-Newton	Blk-282	Jones
Texas	9-Kesler	Sec-42	Kesler
Texas	8-Kesler	Sec-42	Kesler
Texas	10-Kesler	Sec-42	Kesler
Humble	8-Kilgore	Sec-3 Blk-789	Delgado
Lloyd	27-Collier	Blk-139	Smith
Callahan County			
Moutray-Greice	1-Carclay	.....	Dickens
Young Bros.-Alexander	20-Hickman	Sec-148	BBB&C
Heist-Hart	1-Hart	Sec-7	D&DA
Campbell	1-Jackson	.....	Powell
Beams	8-Jackson	Sec-14	ET
Ungreen-Frazier	3-Snyder	Sec-142	BBB&C
Coleman County			
Smith	7-Morris	Blk-483	Woods
Permian et al.	3-Crowder	Blk-483	Woods
Eastland et al.	6-Keeney	Blk-269	Cochran
White Eagle	11-Morris	Sec-25 Blk-722	Webber
White Eagle	15-Morris	Sec-26 Blk-722	Webber
White Eagle	30-Morris	Sec-26 Blk-722	Webber
Smith	1-Crowder	Blk-483	Woods
Taylor-Link	1-Williamson	Sec-105	ET
Cherokee County			
Humble	B3-Elliott et al.	.....	Garcia
Eastland County			
Arab	1-Connellee	Sec-15	H&TC
Conway Bros.	6-Simmons	Blk-27 League-2	McLennon Co. Sch. Ld.
State	3-Coon	Sec-27 Blk-2	H&TC
Tex-Wa Oil Co.	2-McGee et al.	Sec-29 Blk-2	H&TC
Jack County			
Bell Drlg.	1-Moore	.....	Barryman
McCulloch County			
Brock et al.	1-Commercial Natl. Bk.	Blk-303	Littenback
Milam County			
Chapman et al.	1-Hollman	.....	Liendo
Shackleford County			
Hamon	1-Morris et al.	Sec-167	ET
James	1-Herron	Sec-10 Blk-11	T&P
Tannehill	25-Newell	Sec-11 Blk-11	T&P
Morton	1-Davis	Sec-39 Blk-12	T&P
French et al.	1-Conray et al.	Sec-161	ET
NORTH TEXAS			
Archer County			
Gwynn	7-Thompson	Sec-20 Blk-16	ATNCL
Douglas	2-McClure	Blk-13	Crawford
Bridwell	1-McClure	Blk-13	Crawford
Reeder	5-Kunkel	.....	BBB&C
M & V Oil Co.	2-Kunkel	.....	Stell
HiLand	1-Hausler	Blk-16	McCoy
Abercrombie et al.	1-Harrison	Sec-11 Blk-5	Clark
Cont.-Underwood	7-Ward Bros.	.....	TE&L
Silkwood	1-Langley	.....	Hinds
Cooke County			
Lanier et al.	1-Young	.....	Long
Danciger	11-Huggins	.....	SP
Kewanee	1-Burns	.....	Pickering
Tidwell et al.	1-Crobties	.....	Clark
Denton County			
McMeaver et al.	1-Miller	.....	Lynde
Wichita County			
Sheldon-Jamison	1-Valkhart	Sec-309	Waggoner
Panhandle	10-Burnett	.....	Meade
Golding-Cochran	1-Waggoner	Blk-30	George
Keller	4-Waggoner	Blk-1	Williss
Hunter	8-Waggoner	.....	George
HiLand	2-Crudup	League-4	DCSL
River-Oamhundro	1-Chilson	League-4 Blk-7	DCSL
Brown-Lickey et al.	1-Norwood	Blk-36	Palo Pinto Co. Sch. Ld.
Swanner	1-Williams et al.	Blk-15	Palo Pinto Co. Sch. Ld.
Wilbarger County			
Empire	A17-Waggoner	Sec-32 Blk-4	H&TC
Bradstreet	C3-Waggoner	Sec-31 Blk-4	H&TC
Grayback Dev.	1-Waggoner	Sec-32 Blk-2	H&TC
Staley-Wynne	G15-Waggoner	Sec-32 Blk-4	H&TC
Staley-Wynne	E15-Waggoner	Sec-25 Blk-4	H&TC
Staley-Wynne	B7-Waggoner	Sec-25 Blk-4	H&TC
Staley-Wynne	F8-Waggoner	Sec-32 Blk-4	H&TC
Fain-McGaha	GG1-Waggoner	Sec-8 Blk-4	H&TC
Fain-McGaha	HH1-Waggoner	Sec-9 Blk-4	H&TC
Waggoner	J12-Waggoner	Sec-25 Blk-4	H&TC
Pigg	1-Milner	Sec-30 Blk-9	H&TC
Cosden	D3-Waggoner	Sec-35 Blk-2	H&TC
Empire	C16-Waggoner	Sec-25 Blk-4	H&TC
Empire	B24-Waggoner	Sec-32 Blk-4	H&TC
Cosden	D4-Waggoner	Sec-35 Blk-2	H&TC
Davis	2-Waggoner	Sec-35 Blk-2	H&TC
Young County			
Leberman et al.	3-Garrett	Blk-12	YCSL
Halbrook-Woods	4-Dean	Blk-19	YCSL
Wise-Jackson	2-Cullers	.....	Hyatt
Bridwell	3-Cullers	.....	Hyatt
Bundy	1-Johnson	Blk-10	Serveant
Allday	1-Cross	Sec-1993	TE&L
Bowen	1-Neelley	Sec-176	TE&L
Sorrel-Jackson	1-Lowe	Sec-59	TE&L
Wolfe	1-Terrell Est.	Sec-3403	TE&L
Parks et al.	1-Cullers	.....	Stinnett
Willis-Gatewood et al.	1-Wallen	Sec-631	TE&L
PANHANDLE			
Carson County			
Shell	1-Percival	Sec-199 Blk-3	I&GN
Gray County			
Magnolia	4-Fee	Sec-11 Blk-3	I&GN
Constatine et al.	1-Crews	Sec-20 Blk-30	H&GN
Shamrock	1-Taylor	Sec-6 Blk-2	H&GN
Wheeler County			
Texas	1-Caddeback	Sec-18 Blk-24	H&GN
WEST TEXAS			
Crane County			
Humble	2-Univ.	Sec-34 Blk-30	Univ.
Texas	2-Beasley	Sec-46 Blk-30	Univ.
Texas	3-Univ.-Gafford	Sec-46 Blk-30	Univ.
Cochran County			
Westbrook	1-Slaughter	League-118	Knox Co. Sch. Ld.
Culberson County			
Grisham-Hunter	1-Fee	Sec-14 Blk-59	T&P
Glasscock County			
Shell	1-Coffee	Sec-15 Blk-33	T&P
Lion	2-Coffee	Sec-22 Blk-33	T&P
Smith	2-Coffee	Sec-15 Blk-33	T&P
Schermerhorn	2-Phillips	Sec-23 Blk-33	T&P
Kirley et al.	1-Baker	Sec-23 Blk-33	T&P
Howard County			
California	8-Roberts Lse-2	Sec-137 Blk-29	W&NW
Merrick-Lamb	10-Clay	Sec-126 Blk-29	W&NW
Irion County			
Williams et al.	1-Ash	Sec-20	.....
Loving County			
Independent	1-Wheat	Sec-85 Blk-1	W&NW
Pecos County			
Dittman Drlg.	1-McDer	Sec-34 Blk-11	H&GN
Phillips	2-Courtney	Sec-78 Blk-OW	TM
Trees	2-Fee	Sec-90 Blk-8	H&GN
Cosden	1-McDonald	Sec-1	HE&WT
Taylor-Link	7-Univ.	Sec-31 Blk-16	Univ.
Cosby Prod.-Royalty	1-Kansas City & Ft. Stockton Land Co.	Sec-31 Blk-178	TC
Phillips	4-Ramsey	Sec-17 Blk-194	TC
Schleicher County			
Wilson	1-Page	Sec-40 Blk-L	GH&H
Ward County			
J. H. L. Oil Co.	3-Hazlett	Sec-17 Blk-5	H&TC
Shipley et al.	3-Hazlett	Sec-17 Blk-5	H&TC
Winkler County			
Cinderella Synd.	1-Hendricks	Sec-42 Blk-26	PSL

Modern Practice of Drilling Through Big Gas Is Conservation Measure

By Lawrence E. Smith
N. P. N. STAFF WRITER

AMARILLO, TEX.

TWO years have passed since the Miller method of drilling through gas formations was first used in the Panhandle district of Texas. Operators there today are outspoken in their approval of this method which practically removes the hazard to human life in drilling gas-bearing formations and which is a conservation method of first rank.

To the middle of August this year the process had been used on 93 wells, one company having used it on 23 wells. No lives were lost and no injuries resulted from gas although much of the gas in the Panhandle is high in hydrogen sulfide, and where it is permitted to escape is highly dangerous to men working around the well. On the 93 wells only two fires occurred, neither of which was chargeable to this method.

The maximum known volume of gas on any one well handled by the Miller method was 114 million cubic feet and the maximum pressure handled on any one well was 460 pounds. It has been estimated that 75 billion cubic feet of gas has been saved, worth, at two cents per thousand cubic feet, $1,500,000. An engineer has estimated that the value of the gas as lifting power for oil is $2,145,000.

Since Oct. 1, 1928 the use of the method in all wells in the Panhandle field, where gas is found above the oil pay horizon in volume of five million feet or more per day, is required by the Railroad commission of Texas. Specifically, it says, that "such gas shall be shut in and kept under control during drilling and until casing is set and cemented above the oil pay formation. Such control shall be established and maintained by the use of the Miller head, or any device similarly adapted to the purpose."

In the language of the oil fields, the term "Miller Head" is used to cover both the Miller method and the Regan head, the latter made by the Regan Forge & Engineering Co. This combination of names results from the fact that the method and the Regan head have been closely associated and that the late Ned O. Miller, who devised and patented the method, helped perfect the head.

The method consists of a system of balancing the pressure of the gas encountered with a column of water of only sufficient height inside the pipe to effect and maintain such balance. The water extends up behind the inner string only far enough to effect a seal and prevent the gas from breaking in. This is usually from 15 to 50 feet. Careful installation and manipulation keep this balance intact.

The method calls for the landing of an outer string of casing above the gas formation so that it will effectively seal off any outside water from the formation, and the running of an inner string which is carried along with the drilling operation.

As this latter string is carried downward the small column of water behind it is lowered, thereby continuously freeing the wall of the formation from any water and leaving it open and dry, but under control. When the gas formations have been drilled through and a casing point established the casing is set and in practically all cases cemented. Drilling to lower formations is then resumed.

A graphic illustration of the method in use is shown in Fig. 1.

A photograph of the Regan gas controller, used with the Miller method, is shown in Fig. 2. The head is so constructed that it effectively controls the gas outside the casing, at the same time allowing the raising or lowering of casing by permitting the passage of joints without the release of pressure.

Referring to Fig. 2, in running a joint of casing when the Miller method is used, the pressure is released from the upper and lower rubbers, at B and D, and the collar passed through the upper rubber, B to the gas chamber, F. Pressure is then re-applied to the upper rubber, B, and released from the lower rubber, C. The joint, or collar, is then passed through the two lower rubbers, C and D, and run to position, after which pressure is re-applied to middle and lower rubbers, C and D, and drilling resumed. The lower rubber, D, is for emergency use only and is supplied with a cover plate to hold it in place if it becomes necessary to use it alone.

When running casing water is kept in the bowl, H, to lubricate the pipe and save wear on the rubbers. In freezing weather crude oil is used in place of water for this purpose.

From an engineer's report to his company on the use of the Miller method, the following is quoted:

"When the top of the gas pay has been reached, the lower one-half of the regular Regan bradenhead is set up on the last pipe set and the next string of pipe is run to bottom and set down. The assembled controller is then slipped over a joint of casing which is screwed in as the last joint and the controller is made up on the

The late Ned O. Miller, inventor of method of drilling through gas formations

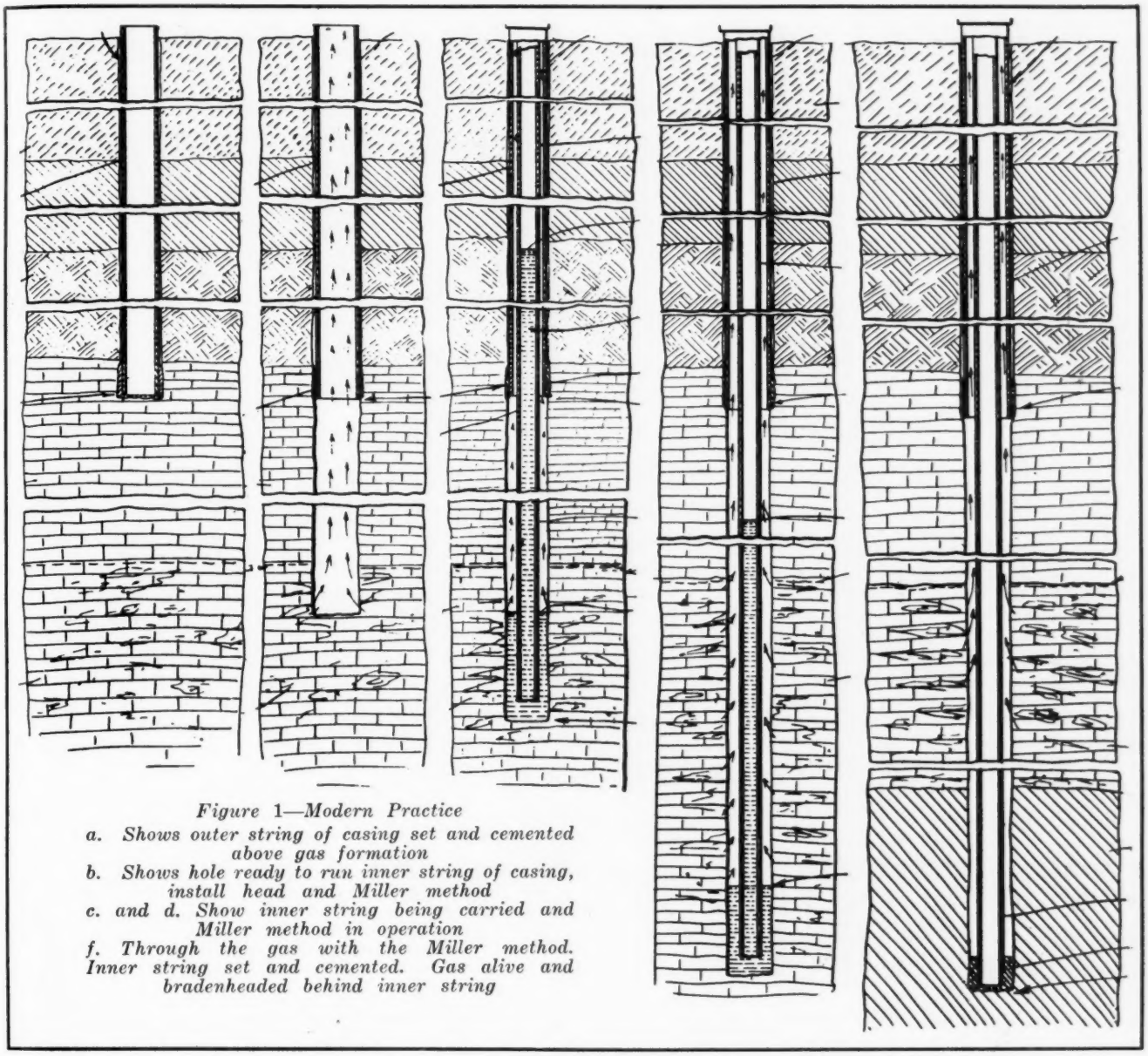


Figure 1—Modern Practice

a. Shows outer string of casing set and cemented above gas formation

b. Shows hole ready to run inner string of casing, install head and Miller method

c. and d. Show inner string being carried and Miller method in operation

f. Through the gas with the Miller method. Inner string set and cemented. Gas alive and bradenheaded behind inner string

bradenhead section which is already in place.

"With the pipe on bottom and gas on its exterior, the bradenhead flow is shut in by setting the controller rubbers against the pipe by the proper manifold pressure adjustments.

"In killing the gas in the interior of the pipe either stop-cocking or a plug may be used. In the stop-cocking procedure, approximately the calculated volume of water that will overcome the gas pressure is pumped in, the well head is then opened until the gas starts bringing considerable water; it is then shut again and more water pumped in. The procedure is repeated until the well fails to blow when opened at its head.

"There are several reasons for stop-cocking the water into the hole. In the first place, by so doing no more water has to be put in than is required to balance the gas and secondly, there is no way of knowing how much water is needed to fill the inside pipe up to the necessary hydrostatic head. Extremely porous and sometimes creviced conditions are often encountered and are especially characteristic of wells that have been permitted to blow open for some time before the installation of the controller.

"When a 'friction' plug is used, the well is shut in and the plug lubricated in ahead of the water. At the point where the weight of the water balances the gas pressure, the observed gauge pressure at the well head will be observed to drop to a vacuum, at that point the well should be quickly opened.

"The term 'balancing' is used to imply an equalization between the water column and the gas pressure when there are some 15-30 feet of water on the outside of the interior pipe. This water on the pipe's exterior acts as a seal and is at all times essential in the process.

"After the gas has been killed and a few additional barrels added, the pipe is swung several feet (five or 10) off bottom and hung on the slips which fit into a bowl for that purpose in the top of the controller. Throughout the drilling process with the Miller method, it is preferred that the pipe swing a few feet above the shoulder to give enough clearance for the underreamer to function.

"After the pipe has been raised and drilling started, it probably will be found that the hole is overloaded. This condition can be partly verified by finding the top of the water column and bailing it down if its head is much greater than the outside gas pressure (figuring 100 feet of water as the equivalent of 43 pounds gas pressure.) But the well conditions cannot be dependably balanced in this manner for the reason that if the hole is excessively loaded, appreciable amounts of water will be taken into the porous formation and behind the pipe.

"The final process of balancing the water and gas requires some time and a knowledge of the theory of the meth-

Only 12 minutes required to shut-in this wild well with a—

HUGHES VALVE

Sold by dealers Everywhere

This picture shows a 12½" Hughes Drilling Valve on the Mission Drilling Company's well, Heard No. 1 Refugio, Texas, and was made after the well had run wild, blowing 2600 feet of 4" pipe out of the hole and cutting almost through the body of an 8¼" valve formerly on the well.

Pressure was estimated at between 1500 and 2000 pounds.

The 8¼" valve was backed off and two 12½" Hughes Valves made up on a swedge and joint of pipe snubbed onto the casing and tied down.

The Hughes Valve was closed in 12 minutes and made a perfect shut-off.

When the well ran wild, the derrick was blown down, and several thousand yards of sand covered the surrounding territory.

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od. After drilling has been started, the pressure on the controller should be constantly observed. (For this purpose it is a good plan to pipe a gauge connection from the controller to the derrick floor.) If there is too much water behind the pipe it will probably show a reading less than the rock pressure. In removing a few bailers at occasional intervals it will be seen to increase as the hydrostatic pressure and seal in the gas formation are reduced. As a balanced condition is approached, gas foam should be observed on the tools when they are pulled out, a gas 'smoke' or small flow should come from the well at a constant rate and the pressure registered on the controller should fluctuate with the motion of the tools.

"This latter effect is very interesting. The water actually takes motion with the tools and the rocking effect thereby created has been observed to produce as much as 12 pounds variation in the controller pressure. This in itself is an indication of a balanced condition but cannot be taken as a positive guide for the reason that creviced and abnormally porous formations might absorb the pressure variations without its being imparted at the controller.

"In maintaining the balance, it is necessary to keep in mind the fact that enough water must be kept in the hole to maintain a seal between the casing shoe and the outside gas. The rocking action of the water during the drilling process may permit a blowout if enough water is not behind the pipe to at all times keep the shoe submerged.

"With conditions in the hole balanced, water should be traded when the bailer is run; the matter of keeping the cuttings removed and the fluid thin is very important. When the water is permitted to take appreciable mud into suspension, the fluid may become impregnated with gas and result in a sudden blowout, inasmuch as such a body would not carry the same weight as that of the gas free fluid and could not be controlled as a balancing force.

"It is necessary to add a barrel or two of water from time to time as is indicated by the action of the tools, the volume of gas emitted and the other factors that reveal the condition of the balance. These additions are intended to take care of formation losses and new hole."

The most common objection to be found among the operators using this method is that of under-reaming, which is necessary in order to carry the pipe as drilling continues. This is a minor one, compared to the many other troubles that arise in drilling these same Panhandle formations in the usual way.

About the only real difficulty, so far, has been found in the encountering of crevices. This breaks the seal at the bottom of the pipe by the sudden loss of water into the crevice. This has happened in a few cases and blow-outs have followed. In such cases it is necessary to keep water going into the hole constantly until enough hole is made below the crevice to run the pipe down and balance up again.

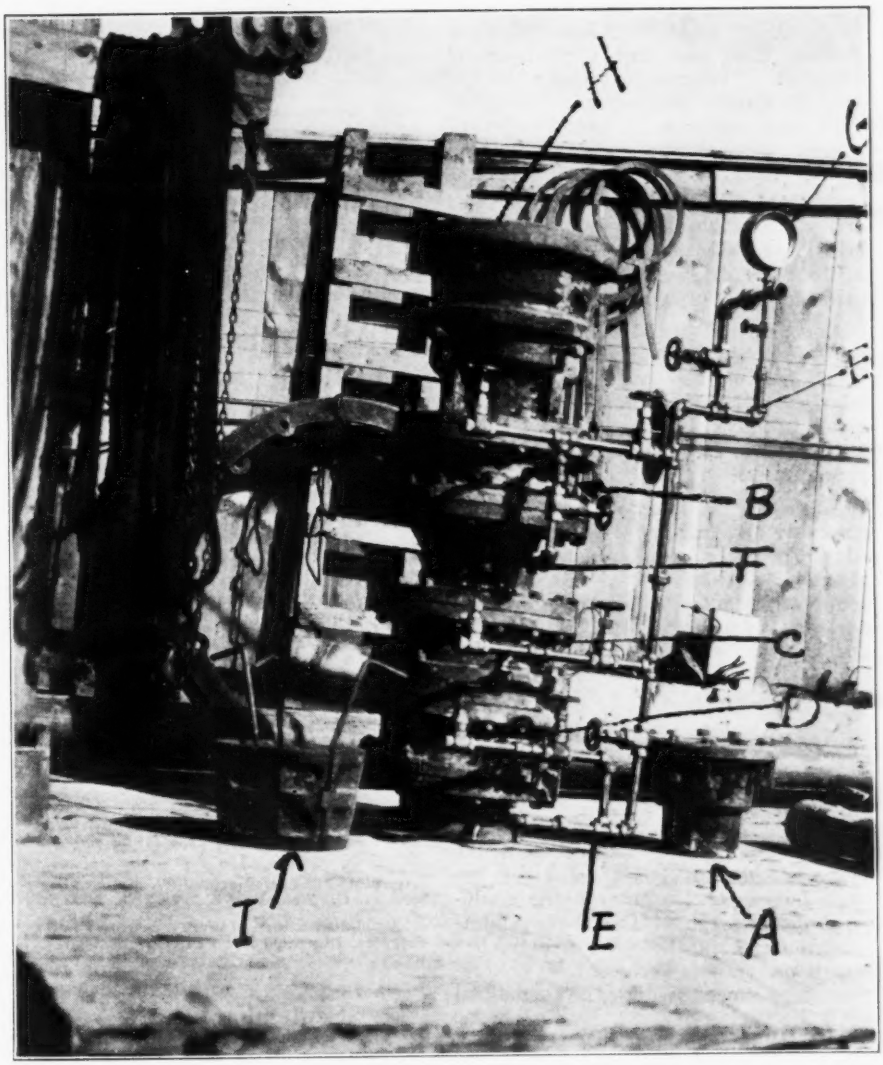

Fig. 2——Surface equipment used with Miller Method. A—Lower flange. Fastens to top of landed casting string. Main body of head bolts to this. B-C-D—Pressure chambers containing rubber bowls which hold against casing under pressure from series of connections, or manifold. E—Manifold connections. F—Gas chamber. G—Pressure gauge. H—Spider, or bowl, for holding rings and slips for carrying casing while drilling. I—Slips

Other blowouts may occur if operators are not careful to keep the proper amount of water in the hole, if, as mentioned in the engineer's report previously quoted, water is allowed to become muddy enough to hold the gas in it, and if care is not taken in pulling the tools and bailer from the hole when a sudden, jerking motion may break the seal and allow the gas to break in.

Because of the possible applicability of this method to areas other than the Panhandle, in view of the widespread interest on conservation of gas, some of the wells handled in the Panhandle are described:

One well was drilled through the gas with this method and equipment in the Sanford area, where the big gas has always caused considerable trouble. This well was 60 feet from a carbon black plant in active operation, with its thousands of open flames. The well had an estimated volume of 60 million cubic feet per day. No trouble was encountered and the well averaged 36 feet per day drilling through the gas.

One company drilled within 150 feet of a gasoline plant, in Gray county. The volume of gas here was estimated at 30 million feet per day. No trouble was had, using the Miller method. Another company had drilled a well open about 200 feet from a gasoline plant in Gray county. Three weeks drilling time was lost while shut down waiting for the wind to change.

A well in Hutchinson county, drilled before the introduction of the method, had a loss of gas estimated at $203,280, based upon a price of two cents

per thousand feet. This well, drilled to depth of 3,042 feet, had 325 days drilling time and cost approximately $105,000. The gas blew into the air for 121 days. Enormous amounts of mud and water and 4,300 sacks of cement were pumped into the hole to try to shut out the gas.

A diagonal offset to the well was drilled through the gas, using the Miller method and the Regan head, in 18 days drilling time with practically no loss of gas.

Another well in the Sanford district, Hutchinson county, installed the head and method at 2,264 feet finished at 2,770 feet and removed the head 14 days later. This well had 30-40 million feet of gas at 345 pounds pressure.

Not all wells make this good time, however. Records in the Miller Method Co.'s office show an average of about 25 feet per day. No time is counted out except for shut down in no way connected with the use or operation of the method and equipment.

Ned Orris Miller, who died in January of this year, was the inventor and patentee of the method. He was widely known among geologists and petroleum engineers. His experience in the oil business started after the war when he went to Mineral Wells, Tex., and began free-lancing in the lease business. He entered the geological department of the Roxana Petroleum Corp. in the fall of 1919, but was soon transferred to the production department where he remained until the spring of 1924. He then went to Amarillo for the Marland Oil Co. and for one and a half years represented the land and geological departments of that company. Early in 1926 he was made district petroleum engineer for Marland and in March, 1927, he resigned to begin work on the Miller Method, patent on which was applied for in May of that year.

Since his death the business has been carried on by his wife, who was Linda Green, one time office geologist for the Roxana Petroleum Corp. at St. Louis. Having seen the beginning and development of the idea, Mrs. Miller was in position to continue the organization as Mr. Miller planned it.

Associated with the company as field superintendent is K. M. (Buck) Berentz, who worked with Ned Miller since the inception of the method. Other members of the organization are Leo E. Bowling, Sanford district; I. B. Crocker, Pampa district and Mrs. S. F. Rose, Amarillo office.

William L. Clark, former production engineer for Phillips Petroleum Co. in the Panhandle, close friend and co-worker of Ned Miller's, has devoted considerable of his time in helping the new organization to function properly. Mr. Clark is a consulting geologist and petroleum engineer, with offices in Amarillo.

NEW PATENTS

Prepared by R. E. Burnham, patent and trade mark attorney, Continental Trust Building, Washington, D. C., from whom copies may be obtained at the rate of 20c each. State name of inventor and number of patent when ordering.

September 17, 1929

REFINING

Gasoline condenser, stabilizer, fractionator, and dehydrator. Helmuth R. Otto, Santa Paula, Cal. Filed June 20, 1927. No. 1,728,440.

PRODUCTION

Oil-well combination casing and packing-head. Lory J. Mildren, Ponca City, Okla. Filed Feb. 21, 1927. No. 1,728,432.

Pipe-puller for wells. William H. Hauck, Utica, S. Dak. Filed Jan. 22, 1929. No. 1,728,544.

Pump-rod guide and swab for well-tubes. Thomas F. Davis, Alma, Ohio. Filed May 26, 1928. No. 1,728,669.

Rotary pump mechanism. Mahlon E. Layne, Houston, Tex., assignor to Layne & Bowler Corporation, Los Angeles, Cal. Filed May 8, 1923. No. 1,728,685.

Well fishing tool. Jarrett L. Cameron, Orangefield, Tex. Filed Oct. 31, 1927. No. 1,728,781.

MISCELLANEOUS

Gasoline-purifier. Herman W. Kriner, Greensboro, N. C. Filed Feb. 6, 1929. No. 1,728,568.

Liquid-dispensing station. Elwin R. Shaw, Freeport, Ill. Filed April 12, 1928. No. 1,728,771.

September 24, 1929

REFINING

Apparatus for pressure distilling oils. Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Co., same place. Filed Feb. 21, 1921. No. 1,729,035.

Art of distillation of petroleum oils. Richard W. Hanna, Piedmont, Cal., assignor to Standard Oil Co. of California. Filed Oct. 4, 1923. No. 1,729,215.

Process of treating hydrocarbons. Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill. Filed Feb. 26, 1920. No. 1,729,307.

Process of treating oils. Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill. Filed Sept. 24, 1923. No. 1,729,308.

Purification of crude aromatic hydrocarbons. Alphons O. Jaeger, Crafton, Pa., assignor to Selden Co., Pittsburgh, Pa. Filed April 12, 1926. No. 1,729,543.

PRODUCTION

Line saver and restrainer for drilling-cables. Earl P. Blankenship and Edward W. Bell, Seminole, Okla. Filed May 5, 1928. No. 1,728,915.

Well-elevator. John Grant, Los Angeles, Cal., assignor to Byron Jackson Pump Co., West Berkeley, Cal. Filed Feb. 14, 1923. No. 1,728,930.

Pumping apparatus. Daniel J. Eastham, El Dorado, Kans. Filed Mar. 4, 1926. No. 1,728,959.

Drillbit. Clinton H. M. Bull, Houston, Tex., assignor to Reed Roller Bit Co., same place. Filed Nov. 26, 1927. No. 1,729,063.

Swab-rubber. William L. Childs, Houston, Tex., assignor to Reed Roller Bit Co., same place. Filed Oct. 31, 1927. No. 1,729,064.

Wellscreen. Joe F. Maloney and Stephen P. Farish, Houston, Tex. Filed Mar. 15, 1927. No. 1,729,115.

Sucker-rod guide. Earl C. Meier, Wichita, Kans. Filed June 13, 1927. No. 1,729,175.

Sucker-rod rack. Albert H. Neilson, Tulsa, Okla. Filed Jan. 9, 1928. No. 1,729,181.

Armored well-screen and method of making. Jesse P. Whann, Los Angeles, Cal., assignor to Layne & Bowler Corporation, same place. Filed Sept. 28, 1927. No. 1,729,197.

Combination sucker-rod and box-socket. Ernest J. Shaffer, Tulsa, Okla. Filed April 11, No. 1,729,494.

MISCELLANEOUS

Safety lock for gasoline-dispensers. Fredrich W. A. Brueske, Madison, Wis. Filed Dec. 8, 1924. No. 1,728,923.

October 1, 1929

REFINING

Separation of olefines from petroleum products—Robert M. Isham, Okmulgee, Okla. Filed Jan. 3, 1922. No. 1,729,782.

Treatment by pressure and heat of heavy mineral oils and carbon material—Max. Hofsass, Mannheim-Neckarau, Germany, assignor to Internationale Bergin-Compagnie voor Olieen Kolen-Chemie s'Gravenhage, Gravenhage, Netherlands. Filed June 14, 1922. No. 1,729,943.

Distillation apparatus — Arman E. Becker, Newark, and Jackson R. Schonberg, Westfield, N. J., assignors to Standard Oil Development Co. Filed Jan. 9, 1924. No. 1,730,112.

Art of obtaining gasoline hydrocarbons—Warren K. Lewis, Newton, Mass., assignor to Standard Oil Development Co. Filed Feb. 3, 1923. No. 1,730,152.

PRODUCTION

Pump-jack—Alonzo W. Ferguson, De Noya, Okla. Filed Mar. 27, 1928. No. 1,729,664.

Counterbalance for oil-well pumps—Stephen L. Crawshaw, Dallas, Tex., assignor to Westinghouse Electric & Mfg. Co. Filed Sept. 23, 1927. No. 1,729,737.

Well point—Thomas F. Moore, Morris Plains, N. J. Filed Oct. 17, 1927. No. 1,729,790.

Injector pump—Frank Newnham and Henry C. Turnham, Los Angeles, Cal. Filed Aug. 17, 1926. No. 1,729,794.

Pump—Jeremiah J. Fitzpatrick, Tulsa, Okla. Filed Feb. 11, 1928.

Steel-derrick construction — Tracy S. Park, Houston, Tex. Filed Nov. 16, 1926. No. 1,729,894.

Compressed-air well-pump—Roger C. Bennett, Seminole, Okla. Filed April 21, 1928. No. 1,730,051.

Fluid elevator—Douglas B. Dennis and Claud Wilson, Taft, Cal. Filed Aug. 9, 1927. No. 1,730,062.

Sucker-rod guide—Sumner B. Merrick, Hanover, Mass., assignor to Merrick & Longbottom, Inc., Philadelphia, Pa. Filed Jan. 19, 1928. No. 1,730,158.

Cone bit—Arthur J. Simpson, Healdton, Okla. Filed Mar. 22, 1928. No. 1,730,301.

MISCELLANEOUS

Fluid-fuel dispenser—Ellis L. Fox, Jr., Jeffersonville, Pa. Filed May 11, 1928. No. 1,729,665.

Manufacture of lubricants—Howard Vimmig, Port Arthur, Tex., assignor to Texas Co., New York, N. Y. Filed Oct. 4, 1921. No. 1,729,823.

Tap, more particularly applicable to oil-drums—Wilfred Tryhorn, Birmingham, England, assignor to Pennant Mfg. Co. Ltd., same place. Filed Nov. 21, 1927. No. 1,729,914.

Oil-pump battery unit—Arthur E. Davenport, Maywood, Ill. Filed July 23, 1928. No. 1,730,119.

Oil-display pump—Arthur E. Davenport, Maywood, Ill. Filed Sept. 20, 1928. No. 1,730,127.

Gasoline-pump—Forrest C. Meserve, Salem, N. H., assignor to Underwood Meserve Co., Boston, Mass. Filed Mar. 21, 1927. No. 1,730,330.

Braun coolers incorporate those features of superior design which make possible, after years of service, the same high heat transfer rates and low pressure drops which obtain when coolers are first installed. Floating channel permits using temperature differential to accomplish scale shedding without jeopardizing tightness of tube joints. Detachable cover plates permit complete removal from the cooler of dirt which collects inside tubes. Multiplicity of pass and nozzle arrangements and advantageous location of coolers in cooling towers make possible the properly engineered solution of your problem.

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Geologists Study 1600 Miles of Structure

By William F. Lowe
N. P. N. STAFF WRITER

TULSA

REPORTS of geologists who recently returned from the Third Annual Field Conference of the Kansas Geological Society, are more enthusiastic than ever before over this type of field excursion.

The areas covered, the personnel and the management, in fact, everything except the weather, were spoken of very highly and the interest shown in this trip indicates anticipation of future opportunities for jaunts with the same group.

On the evening of Sept. 2, nearly 120 of the leading geologists of the country met in Rapid City, S. D., for the first session of the conference. The following morning the start was made in automobiles furnished by the companies of the various participants, on the trip that included the Black Hills of South Dakota and Wyoming; the Bad Land Area of northwestern Nebraska; the Hartville Uplift of southeastern Wyoming; the Rocky Mountain Front range between Douglas, Wyo., and Loveland, Col., and the Pre-Cambrian area of the Rocky Mountains of Colorado between Estes Park and Denver. These represent but the major features that were studied in course of the 1600 miles logged in the itinerary.

A glance at the accompanying illustration will give a good idea of the detail study along the route. It is a photostat copy of but one page of nearly 70 such pages in the itinerary and indicates the effort of the committee to see that nothing of importance was missed.

At every stop lectures were given on the geologic features of that particular locality by the men most familiar with it. Leaders and advisors, authorities in their particular field, were chosen for each geographic division covered, and the visitors got from them first hand the results of their research in any given area. Several oil fields and one mine were visited and their relation to the major structural features noted in detail.

The trip from Fort Collins to Denver through Estes Park and over the Continental Divide through Miller Pass and Berthoud Pass, would have been the most beautiful from a scenic standpoint and one of the most interesting in a geologic way, but the deep snow prevented the party from attempting to make the passes. Weather was the one thing that failed to cooperate with the committee and was responsible for the only hitches in the perfectly timed and arranged route. Rains in Nebraska and snow in Colorado made anything like schedules almost an impossibility. It has been suggested that perhaps next year the trip may be made two weeks earlier thereby missing the early seasonal storms.

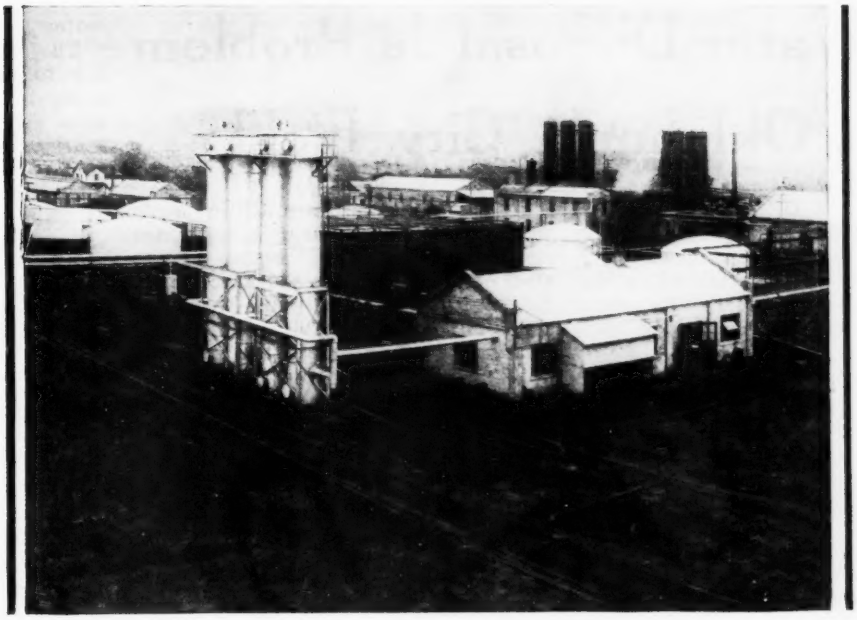
Outside of those features over which the leaders had no control, the third annual field conference was a complete success, and those in charge are entitled to a very full measure of praise for their efforts. This is especially true of Anthony Folger, chairman of the committee on arrangements, and his able assistant, L. W. Kesler who devoted so much time and energy to the planning and engineering of the entire conference.

It would be hard to over-estimate the value of such a trip to geologists who are working with oil companies. One can easily read reports written by men who have made a study of the geologic features visited on this trip, but the personal contacts with these same men on the ground, are worth far more than any written words. The cost of the trip is purely nominal considering the return, and it is to be regretted that more companies do not take an active part in these conferences. That the idea is growing in the minds of operators is evidenced by the classification of the geologists who attended this year. There were 98 commercial geologists, representing 40 oil companies, 22 state geologists, four representatives of the United States Geological Survey and 31 academic geologists coming from 20 different colleges and universities.

A Page From a Geologist's Road Guide

Mileage

54.4 Franklin Hotel, Deadwood. Go west past High School.
54.5 Homestake Cyanide slime plant on hill left.
54.8 Pre-Cambrian schists left.
55.1 Old pyrite mine left.
55.3 Quartzite.
55.4 C & NW freight line to Lead.
55.5 Garnetiferous mica schists.
55.7 Thick Quartzite left. On right, red stained rock is cummingtonite schist—Homestake ore formation. This rock appears here in three places, two of which are west of the Home For The Poor, on right. Duplication is due to drag folding.
55.9 Cummingtonite schists in R. R. cut left.
56.1 Homestake Cyanide sand plant No. 2.
Porphyry sill right in R. R. cut.
56.2 *TURN LEFT.*
56.3 Calcareous slates lying below cummingtonite schists left and right.
56.7 North end Homestake open cut on hillside ahead to left. This portion of the ore body lies in a southward plunging syncline, which comes to the surface on the hill but which in Lead is several hundred feet below the surface.
56.8 Approximate axis Homestake Anticline.
57.2 Cummingtonite schists right.
57.3 Cummingtonite schists right.
57.4 Approximate axis Lead Syncline.
57.5 *TURN LEFT.*
Cummingtonite schists left.
The three exposures here are again due to drag folding. On the right across the gulch the cummingtonite beds again occur. In the gulch are to be found the calcareous slates lying below the ore formation, so that the road lies approximately on the axis of the Poorman anticline. To the west is at least one more large syncline involving Homestake formations. These folds may be traced for distances of 5 to 7 miles north and south, and are very narrow, steeply pitching isoclinal folds with many drag folds superimposed on their limbs. The mine prospect at 57.5 is on a drag fold.
57.7 Red outcrop on hillside left is cummingtonite formation.
58.2 Same on old dump left.
58.4 Cross Burlington tracks. *SLOW. STEEP GRADE.*
58.5 *TURN LEFT*, down Main Street of Lead Highland Hotel, Lead.



A small section of the Skelly Oil Company Refinery at El Dorado, Kan., where Aluminum Paint protects many types of petroleum equipment.

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Salt Water Disposal Is Problem In Oklahoma City Field

OKLAHOMA CITY

WATER problems of two kinds exist in the Oklahoma City pool. One is the matter of boiler feed and drilling water. The other and greater is the disposal of salt water produced with oil.

Like all fields which have lime formations, and particularly Ordovician lime, as their oil reservoirs, the Oklahoma City pool makes considerable water and, as the field gets older undoubtedly will show an increase in this respect. Salt water produced with the oil at the time the field was shut in, Sept. 12, was nearly 10,000 barrels per day. Of this one well, Sinclair Oil & Gas Co.'s No. 1 Stamper, yielded 5000 barrels.

Oil fields located near a salt water stream, as the Cushing field, for example, is, have no problem. Oklahoma City's principal watercourse is the north branch of the Canadian river, a fresh water stream which is the water supply for Oklahoma City and, below it, Shawnee and other towns. As all the creeks and other minor natural drainage features of the region are tributary to the Canadian, no avenue of relief is offered in that direction.

Expedients such as construction of earthen reservoirs are not satisfactory. There is some land in the field that is worthless for farming or truck gardening but it is sandy, highly porous and when used as salt water storage basin permits the water to filter away rapidly, threatening pollution of the fresh water sands which supply the farm requirements of the region.

Oil companies also are drilling wells to the fresh water sands to guard against a shortage of water in the river and to obtain a better boiler feed water than is had from the river. The soil makes poor dams for the salt water ponds and several of them have crumbled away, letting the accumulated salt water run over the lease and making a general mess.

The customary damage claims, of course, will arise. There was never an acre of ground, no matter if it consisted of red shale on which not even mesquite would grow that did not take on a new beauty in the estimation of the owner once a pint of salt water from an oil well touched it.

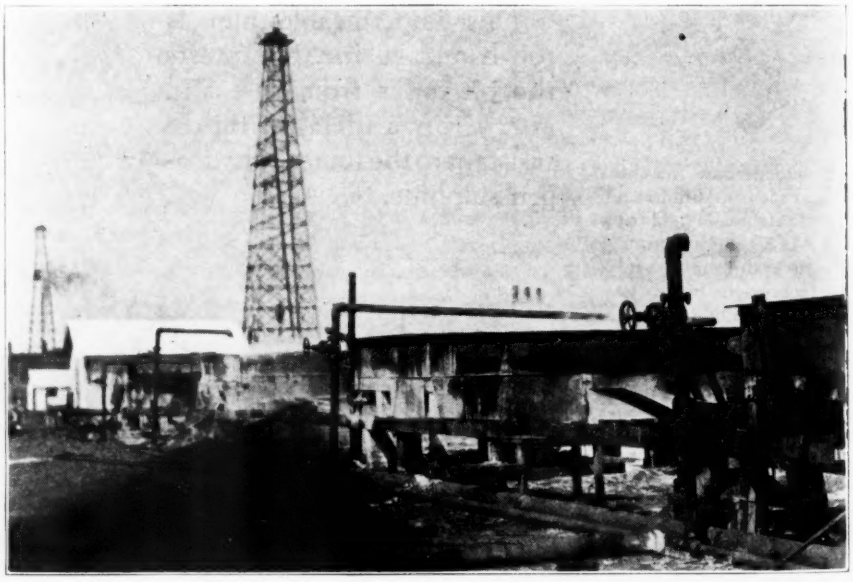
The Sinclair Oil & Gas Co. is trying to meet its problem in part by going into the salt and chemical business in partnership with Otto V. Martin, designer of the plant and consulting chemical engineer. Mr. Martin planned and built the chemical plant at Sand Springs, Okla., which operates on water produced from oil wells in the vicinity. This plant was described in NATIONAL PETROLEUM NEWS, Aug. 4, 1926 issue.

The salt water produced from the Siliceous lime horizon in the Oklahoma City pool contains about 15 per cent sodium chloride by weight and five per cent calcium chloride. Magnesium chloride runs about one per cent. There is just a trace of the sulfates and small amounts of bromine and iodine. By treating in tanks before the water reaches the evaporation pans the magnesium and ammonia are precipitated.

The plant now in operation on the Sinclair lease is a temporary one and has as its principal purpose now the disposal of salt water. It is getting rid of 2000 barrels of water daily, using between three and four million feet of gas. A larger plant, handling more than twice as much as the present one, will soon be under construction. Salt, Mr. Martin says, is the least profitable of the products that will be recovered. It is, like oil, overproduced and has been for years.

The other water problem of the field, that of supplying boilers and holes, is bothersome chiefly because of the quantity required. The Indian Territory Illuminating Oil Co., operating on the largest scale of any company in the field, is now pumping 75,000 barrels daily and has just authorized enlargement of its system to handle 45,000 barrels more each day.

A group at the salt water plant. Left to right, Otto V. Martin, chemical engineer, who built the plant; D. D. Mungen, associated with Mr. Martin; A. A. Arras and J. A. Sivalls, of Black, Sivalls & Bryson, tank manufacturers; O. P. Warlick, general auditor, Empire Oil & Refining Co.



Evaporating trays of salt water disposal plant on Sinclair lease

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

H. L. McMENEMY has been appointed night superintendent of the Richardson Refining Co., Big Spring, Tex., according to a note from C. B. Faught, superintendent. For the past 10 years, Mr. McMenemy has been in charge of the laboratories and plant research work of the Deepwater Oil Refineries at Houston.

The Richardson refinery is now operating its two Jenkins cracking units which are of the latest design and have a charging capacity of 1500 barrels of fresh feed each, daily. A 10,000-barrel Foster-Wheeler pipe still also is in operation for skimming the crude. A rerun still and a tower unit designed by the Graver Corp. is used for rerunning the Jenkins pressure distillate, Mr. Faught says.

* * *

ALUMINUM piping makes good swing arms for refinery loading racks, according to Dr. Sidney Born, assistant general superintendent of refineries of the Transcontinental Oil Co., Tulsa. It is lighter than steel pipe and hence easier to handle, he points out. In addition, it does not rust. Dr. Born has tried it out at the Fort Worth refinery of the company.

* * *

REFINERS can help automobile manufacturers a good deal, particularly in this period of increasing acceleration of engines, by providing better lubricants for rear axles. This is pointed out by A. Ludlow Clayden, chief technologist of the Sun Oil Co. in an article in the Oct. 5 issue of Automotive Industries.

Mr. Clayden, who has spent a good many years on the automobile engineer's side of lubrication problems as well as good many on the refiner's side, points out that increasing the power and pickup of engines has not been accompanied by a proportionate strengthening of the gears, which has caused some rear axle trouble.

He states that with certain special rear axle lubricants it is possible to operate some of the newer cars with gears so light that they would fail if lubricated with plain oil. Mr. Clayden's company, among others, has done and is doing a good deal of research work on grease lubrication.

* * *

WHEN welding two ends of Calorized tubing together or when welding Calorized pipe to chrome alloy or some other kind of pipe in furnace coils, it is desirable to protect the weld by an outer coating, it has been found in the laboratories of the Calorizing Co., Pittsburgh.

The Pure Oil Co. uses Calorized pipe for most of the coils in the high temperature convertors of the Gyro vapor phase cracking process. However, chrome nickel alloy steel is used for the part of the coil that is directly in contact with the flames. A length of chrome alloy steel about 5 feet long is welded into each coil just above the fire. This method of construction as used at the Pure Oil Co., Heath, O., refinery, was described in the Oct. 2 issue of NATIONAL PETROLEUM NEWS, page 87.

The procedure for protecting these Calorized-alloy welds is described as follows:

First, paint the joint with aluminum paint; second, paint with powdered aluminum mixed with lead oxide; third, cover with water glass and fourth, encase the joint in high temperature cement.

Such coatings have been extensively tested out in the laboratories of the Calorizing Co. plant, according to N. E. Ward, sales manager, and have been found to stand up well under pipe temperatures as high as 1600 or 1700 F. which he states would mean a furnace temperature of 200 to 400 degrees higher.

It is pointed out that it is impossible to weld Calorized pipe without scraping off the aluminum oxide coating which leaves the pipe bare and exposed. Hence the welds should not be left unprotected.

* * *

A DISINTERESTED laboratory is now available to refiners who wish their gasoline tested for anti-knock rating. This is announced by Professor George Granger Brown of the University of Michigan, whose work on motor fuels, particularly in behalf of the natural gasoline manufacturers' association, is well known.

The announcement states that "the department of engineering research at the University of Michigan is now equipped to make certified tests of samples of gasoline for knock rating on our N. A. C. A. Universal Test Engine.

"Standard A. S. T. M. distillation and gravity determinations will also be included. This service will be under the personal direction of Professor George Granger Brown."

The price for testing one sample is $55 and for each additional sample in the same shipment, $45. Payment in advance is required and should accompany order. Drafts and checks should be made payable to University of Michigan. Directions for sending in samples for test are as follows:

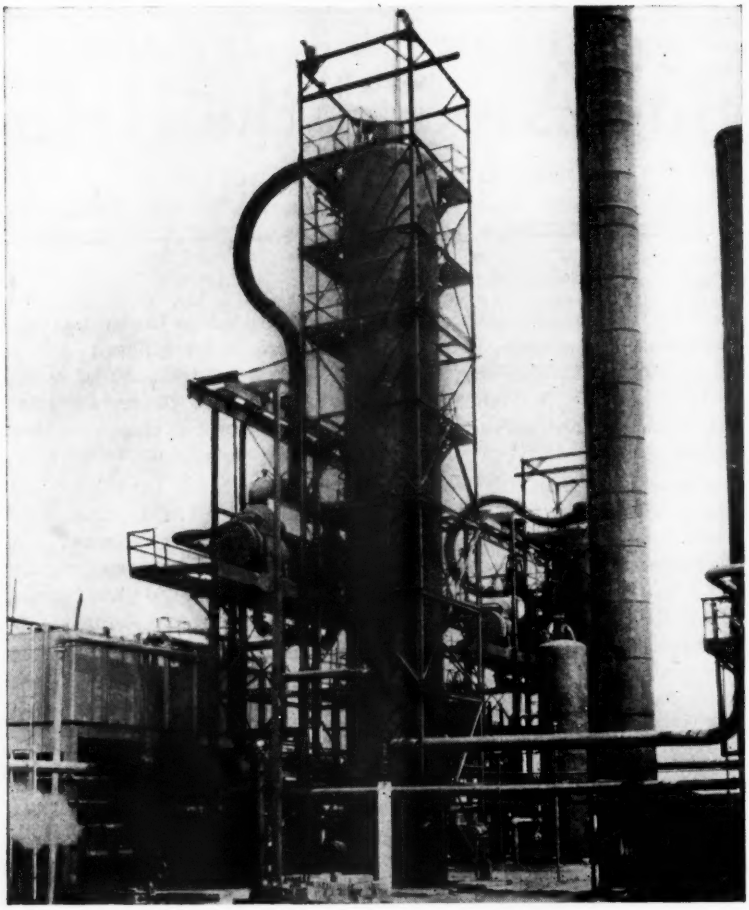
"All samples should be sent in sealed containers with at least one gallon of each sample. They should be forwarded with all charges paid to Department of Engineering Research, University of Michigan, Ann Arbor, Mich.

"Identification marks should be securely fastened to the sealed containers and also on the shipping boxes."

* * *

CHEERFUL news comes from some of the refiners of West Texas crudes that their gasoline is meeting a hearty welcome in the markets of the north, northwest and middle west, particularly on account of its high anti-knock value. It is said that some of the gasoline being shipped from West Texas plants equals in anti-knock value a blend of 40 or 50 per cent of benzol in U. S. Motor gasoline.

While the benzol equivalent method of stating anti-knock value is known not to make exact evaluation possible, it is certain that West Texas motor fuel is of a relatively high order of anti-knock value.



Foster Wheeler Skimming Plants

The Foster Wheeler fractionating towers, shown above, are designed for the continuous removal to specification of gasoline as an overhead vapor, gas oil as a side stream and fuel oil bottoms. Provision is made in the construction of the towers for the removal of additional side streams in case lubricating oil is desired. Wheeler heat exchangers are shown to the left of the towers.

This equipment is part of two stripping units completely designed and erected by the Foster Wheeler Corporation. Each distilling unit has a rated throughput of 10,000 barrels per day.

Foster tube stills (not shown above) where crude receives final heating before delivery to the towers are located at the right and the pump house to the left of the towers.

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FOSTER WHEELER

Grease Making—Past and Present

By A. R. Lange*

(Presented before Petroleum Division, American Chemical Society, Minneapolis, Sept. 12)

THESE papers were presented at the first Grease Symposium ever held by the Petroleum Division of the American Chemical Society or, so far as we know, by any other organization. They are passed on to N.P.N. readers herewith by special permission of the American Chemical Society.

RECENTLY there appeared in one of the trade journals a glowing advertisement of a new lubricant in which the caption "Grease and Grief" appeared.

In this same announcement a photographic arraignment is made of the Greasemakers Guild by displaying a picture of so-called "ordinary" grease containing 25 per cent harmful fillers, such as mica, talc, asbestos, rosin, and clay.

The sincerity of such an advertisement is questionable, but as it featured a grease versus a hypothetical "ordinary grease," it stresses to me the need of more scientific data as to the why and wherefore of grease.

Among lubricating engineers today there seems to be a rather sharp division as to "when to grease" and "when to oil." Unfortunately the decision is often made by the sales departments of the various firms and inasmuch as it has often been the case of "use oil until you have to sell grease," it seems quite in order to make a studied survey of the merits of grease lubrication, as well as to determine means of determining the proper lubricant and the control factors that cover the choice of such products.

I recall a conversation that was related to me after a lubricating engineer had watched one of our greasemakers reduce a batch of conventional cup grease.

"There is nothing to it," he said; "all you need is a jacketed kettle, the fat, lime, and mineral oil."

He was merely starting where others had left off, but on the other hand, I am reminded of an amusing incident that takes the other direction. A group of some 50 college graduates, quite a few of them chemists, were being shown around a grease house. The guide was getting along very nicely, as follows:

"Here, gentlemen, we have a kettle in which we make our blank cup grease. We take fat, saponification, lime, mineral oil, and that makes cup grease." One of the young men, knowing more than he indicated, inquired as to what saponification was, and received this reply, "That is something we do not tell anyone."

So perhaps if taken in this light, we can accuse the greasemaker of keeping his art too closely to himself, and that we welcome this symposium on grease as being in order, even though somewhat overdue.

The few items I have to contribute will probably be in a minor key and are submitted to indicate in a small way some of the changes that have taken place from time to time in the art of greasemaking. You will note that I call it an art.

Any of you who questions this can easily convince himself of this term by taking any number of special greases to a laboratory; better still, I will give you a dozen formulae to start with and I shall ask you to make certain products as per sample submitted.

I shall promise the average technical man a very low rating in advance on his ability to make anything that even approximates what the humble experienced greasemaker can make. Any grease chemist who has actually paddled his way through a list of specialties will tell you how many more bad batches he made than good ones.

Greasemaking can be classified somewhat roughly into the following branches:

1. Straight fats or simple blends with mineral oils, pitches, waxes, etc.
2. Greases made by simple neutralization.
3. Greases made by cold or semi-boil saponification.
4. Greases made by saponification or two-stage reaction.
5. Greases made by substitution of bases.

THE first list comprises the old-time series of greases. There is little to say for them, the only outstanding grease of this class is a type of hot neck grease which is controlled for melting point by the amount and character of pitch used, and which is poured either in cakes or white-washed barrels.

The second list covers both greases made from rosin or rosin oil and those made from fatty acids. No heat and therefore little mechanical help is needed here. Inasmuch as alkali will react to cause an immediate set with rosin acids or fatty acids, it behooves us to keep them apart until they are diluted with oils that will control both melting point and consistency when the two are contacted.

If a stream of alkali in solution meets a stream of acids in mineral oil solution, they will unite to form a soap and grease. As some of these set with the temperature as quickly as 15 seconds, it is necessary to stir them violently while mixing in order to properly disperse the ingredients. This classification covers axle greases, water-pump greases, etc.

All greases belonging to this classification will show free alkali inasmuch as the successful utilization of the soap stock present calls for a reaction overbalanced in favor of alkali. While I have stated that these greases are simple to make, I might add that a simple machine designed by ourselves is capable of continuous operation to the speed of 250 kegs of 100 pounds each per hour.

THE third classification which I have made covers the manufacture of greases without resorting to the open kettle boiling necessary for a good neutral saponification. Fats can be saponified in the cold or by a semi-boil in the presence of mineral oil required in the finished product, if an excess amount of alkali is used.

Also, if it is desirable to have some free fat present in the grease to increase its oiliness, this method can be employed without using excessive alkali; rather less than theoretical alkali necessary for combination can be used. The most popular greases falling within this range are the socalled engine greases, known by their waxy appearance, and the railroad journal compounds.

The fourth type of grease covers the conventional cup greases, sponge or fibre grease, brick greases, and many variations of these when they are used as a basic material. As a rule, fats are employed that are relatively low in free acid content. The hydrolysis of such a fat into fatty acid and glycerine constitutes the first reaction which is followed by the combination of the alkali with the fatty acids to form soap. This soap is then reduced with the type mineral oil required in the finished grease.

Greases made from a more or less neutral soapstock require more time for manufacture than when made from fatty acids, but they are more stable because of the stabilizing effect that

*Chief chemist, Swan & Finch Corp., New York.

the liberated glycerine has upon aging of the grease.

These greases can be made over open fire, in steam-jacketed kettles, or in closed pressure cookers. There are advantages to these several methods which can hardly be covered at this time. The first manufacture of lime soap cup grease in an open kettle is credited to a greasemaker whose name as near as I can confirm was Bollicker. He was employed by the Swan-Finch Oil Corp. for many years, and I am told he brought the process from Germany.

Whereas the choice of fats was more extensive years ago, this man was able to experiment with a wide variety of raw materials, and I can assure you that while I never had the opportunity of meeting this man, I did see some of his handiwork, and some of the greases he made were worthy of the envy of some modernistic. experts.

In order to give you some idea of the speed of reaction between fats and lime in an open steam jacketed kettle, I am adding a few figures from some data taken some years ago. The fat contained in each case 6.00 per cent free fatty acid; the batches were run to finish 50 barrels; the steam pressure was maintained at 60 pounds. The saponification percentages are in terms of combined soap without having any mineral oil added.

(Percentages Indicate Saponification)

	Batch No. 1	Batch No. 2	Batch No. 3	Batch No. 4
1 hr.	66.00%	53.80%	47.70%	.....
1 hr. 30 min.	.....	.....	.....	50.70%
2 hr. 30 min.	95.00%	95.30%	94.30%	.....
4 hr. 40 min.	.....	.....	97.50%	.....
5 hr. 15 min.	.....	.....	.....	86.00%
6 hr. 30 min.	97.00%	96.00%	.....	.....
8 hr.	97.30%	97.80%	.....	.....

Inasmuch as the saponification of a whole fat is slow in the presence of mineral oil, it is necessary for a greasemaker to know the proper amount of water to use to hydrolize his fat and still not have too much left in the batch to evaporate. This changes with type of kettle, grade of lime used, and the kind of fat. The lime and water ratio to the above batches were as follows:

Batch No. 1 was chemical grade lime hydrate 550 pounds in 30 gallons of water and boiled with 3200 pounds fat of 6 per cent free fatty acid.

Batch No. 2 was rock lime 410 pounds in 200 gallons water with same amount of fat.

Batch No. 3 was lime flour 550 pounds with 150 gallons water with same amount of fat.

Batch No. 4 was rock lime 410 pounds in 125 gallons water with same amount of fat.

* * *

Under date of July 13, 1917, a chemist, Frank B. Mason, employed by the Swan-Finch Oil Corp., was granted a patent for the rapid manufacture of lime soap greases. Due to the demand for glycerine during the war, fatty acids were available in large quantities. This process made possible the cooking of two or three batches of grease in the same time that was required for one batch, starting with a neutral fat. This patent is covered by serial number 1,294,136.

Last year, the author, in conjunction with Mr. Mason, was able to produce a lime soap grease that seems to contradict the usual properties of lime soaps, in that no "binder" is required and which reverts to its original form after melting. This is quite the opposite of what happens when a true lime soap grease is examined under heat. This product is not entirely without its faults, and for the time being is only mentioned for the novelty it possesses.

The greases covered by Class 5 are aluminum and lead soap base greases. Aluminum soaps can be made by replacing the soda of a soda soap with aluminum salts and lead soaps can be made by treating a soda soap with lead acetate. Under proper control fairly theoretical results can be obtained and the resultant soaps reduced with mineral oils to consistency and color required.

The major theme in greasemaking has been the manufacture of a soap of the required type in the most economical manner. This is modified either in the batch or by further reduction in a supplementary kettle. In this manner we arrive at a multiplicity of products. To be candid, a good many greases are admixed with considerable psychology. Will you have it, yellow or red? Will you have it containing a mineral oil of 100 seconds at 100 degrees Fahr. Saybolt, or will you have it containing a nice tarry black oil?

I might say a word as to the future of greasemaking. There has been considerable redesigning of machinery to allow the use of oil. In some cases it has worked, in others the amount of oil the consumer is willing to purchase is still the bone of contention. There are, however, many greases that have their future still safe, among them I mention:

Roll neck greases
Textile machinery greases
Cement mills greases
Shafting lubrication without drip
Tunnel bearing greases
Rope lubrication
Launching grease
Roller and ball bearings greases

And last, but not least, any and all of the machines where loose bearings and large clearances seem to justify a heavier film than can be maintained with oil, regardless of all arguments as to coefficient of friction to the contrary.

In closing, I might suggest several points that can be studied to good advantage in the near future:

1. Melting point, how can it be recorded and what does it indicate?

2. Does soap in a grease lubricate, or is it the mineral oil used?

3. Does the resistance of a grease to separate change the answer to second question?

New Equipment

Bennett Pumps Corp., Muskegon, Mich., announces a bulletin describing the Eco high pressure piston-type self-oiling car washer made by the Service Station Equipment Corp., Bryan, O., in one, two, three and four gun models. This washer is designed especially for continuous operation at busy wash racks where quick results are required. The pump is of self-oiling vertical type.

Any cleaning solution, the company says, whether it is hot or cold can be handled with the same efficiency as ordinary water. Specifications and illustrations are included in the bulletin.

* * *

The Louis Allis Co., Milwaukee, Wis., tells the story of "explosion-proof" self-ventilated motor in bulletin 508, which also describes and illustrates squirrel cage motors in various industrial plants, where explosion hazards are great.

Its type E "explosion-proof" motor is used widely in oil, dry cleaning, lacquer and chemical industries, the bulletin says. The "explosion-proof" motor is totally enclosed, and listed by Underwriters' Laboratories for use in extra-hazardous locations.

* * *

Addition of some $17,000,000 worth of assets to the business of the Central Alloy Steel Corp., Massillon, O., was made recently with the acquisition by that company of the properties, assets and business of the Interstate Iron & Steel Co., Chicago, according to F. J. Griffiths, chairman of the Central Alloy company.

The aggregate ingot capacity of the latter company, with the addition of the Interstate's 396,000 tons, will be 1,938,000 tons. The purchase of the Chicago concern places the Central Alloy company into a better position to serve western oil and railroad consumers. It will develop and expand the newly acquired company's properties, according to the announcement.

Tests of Lubricating Greases And Their Relative Value

By F. L. Koethen*

(*Presented before Petroleum Division, American Chemical Society, Minneapolis, Sept. 12*)

IT HAS been customary to refer to grease making as an "art," not an exact science, and to a large extent it has also been true that the application or use of lubricating grease has been more or less a rule-of-thumb process. Many different tests are needed to reduce this uncertainty and definitely measure the various properties involved. The following remarks are intended to indicate the value of these tests.

Identification

Often a few quick observations will indicate to what class of greases a lubricant belongs without taking the time or expense for a complete analysis. This is especially true when it is merely desired to know whether the grease is suitable for a given usage.

Calcium soap greases have a smooth appearance and lack elasticity. They are insoluble in water and melt much higher than petrolatum and paraffin wax but generally slightly below the boiling point of water. They change in appearance after being melted on a hot plate or in an oven, some mineral oil usually separating after this operation. Under the microscope, they are characterized by round globular particle shape.

Calcium-rosin greases (axle greases) are similar in appearance to calcium-fat greases but break down in consistency much more when stirred or mechanically worked. Rosin greases feel more sticky than fat greases made from the corresponding mineral oil. They melt above the boiling point of water but below the melting point of anhydrous sodium soap greases. They are insoluble in water and give the odor of rosin when burning.

Sodium soap greases, anhydrous, are characterized by an elastic fibrous nature, the soap being in thread-like strands. (These strands may actually be seen under the microscope, if a small sample of the sodium soap grease is broken up in cold "petroleum ether" and a drop placed upon the slide.) Sodium soap greases are soluble in water to a milky emulsion. The melting point is much above that of any other commercial greases and there is very little change in nature upon cooling again.

(A mixture of asbestos fibers and cylinder stock has an appearance very similar to a sodium soap-cylinder stock grease and, of course, a high heat resistance, but can easily be distinguished after dissolving in a little gasoline or benzol.)

Sodium soap greases containing water are not often encountered. The water destroys the fiber, giving rounded globules and the mass is a lifeless, low melting paste.

Soda-lime greases, mixtures of the two kinds of soap, have a short indistinct "fiber" and high melting point.

Aluminum soap greases are insoluble in water, smooth, often translucent. The cleates are stringy, the stearates elastic.

Lead soap greases are smooth, very adhesive, non-elastic. Easily identified by presence of metallic lead or litharge in the ash.

Stear-anilid as a stiffening constituent of grease gives a grease similar in appearance to wax, with a low melting point and much "break." Such greases emulsify easily with water.

CONSISTENCY is probably the most important characteristic of a grease as far as suitability for use is concerned. In order to properly judge this property, two tests are necessary, the consistency on the sample as it exists in the original container and the consistency after it has been "worked" or broken down by mechanical action. The latter really indicates how the grease will behave in a bearing, the former indicates how it will look and how it must be applied. A grease may be broken down by hand using a spatula to spread the sample out repeatedly in thin layers on a metal surface, or the grease-working device mentioned in A. S. T. M. Specification D127 may be used.

Calcium-fat greases have a definite consistency after breaking down which goes no lower with repeated working —soda soap greases have very little "break." Calcium-rosin greases have very great "break" and often re-set, if allowed to stand 24 hours after "breaking."

In order to secure a sample which has not been mechanically broken down, the ring suggested by Karns & Maag is very valuable. This is a metal ring of the desired size, one edge of which is tapered thin. By pushing this ring into the grease and cutting away the surrounding grease, an untouched sample may be lifted out.

As a penetrometer needle, our grease manufacturing plant has used for 14 years a straight sided plunger 5 millimeters in diameter, by which we determine the weight needed to cause the plunger to descend 11 millimeters in 5 seconds. This has the advantage of needing only a very small sample, having a very wide range and of giving results in which the high values represent the stiffer or high numbered greases. The tapered cone penetrometer specified in A. S. T. M. Method D127-27T gives results subject to a variation, due to the stickiness of the grease on the flaring sides of the cone, as pointed out by M. R. Schmidt. The tapered cone penetrometer requires a larger sample than our own. However, we have found the A. S. T. M. penetrometer easier to operate than any variable weight device, and very useful and practical.

The final standard device used in measuring consistency should, of course, be of the plastometer type, such as that of Bingham or the simplification by Porter and Gruse, but the tedious details of operation and conditioning prevent its general use for routine operations. Because the plastometer gives separate readings for yield value and mobility, interesting differentiations between the physical properties of calcium and aluminum soap greases, for instance, may be made.

FOR testing very stiff pastes intended to be forced through long ducts in use, the author has used a simple device which uses a "Mason regulator" to reduce city water pressure to the desired constant pressure, measuring the flow through small tubes of various sizes. Success in using such a regulator, depends on maintaining a constant flow of water through the regulator into the pressure chamber and out again by a valve whose setting is not changed, the result being that the regulator diaphragm is in constant motion and does not stick.

The grease to be tested is put into the chamber above the orifice, the pressure applied, and the number of

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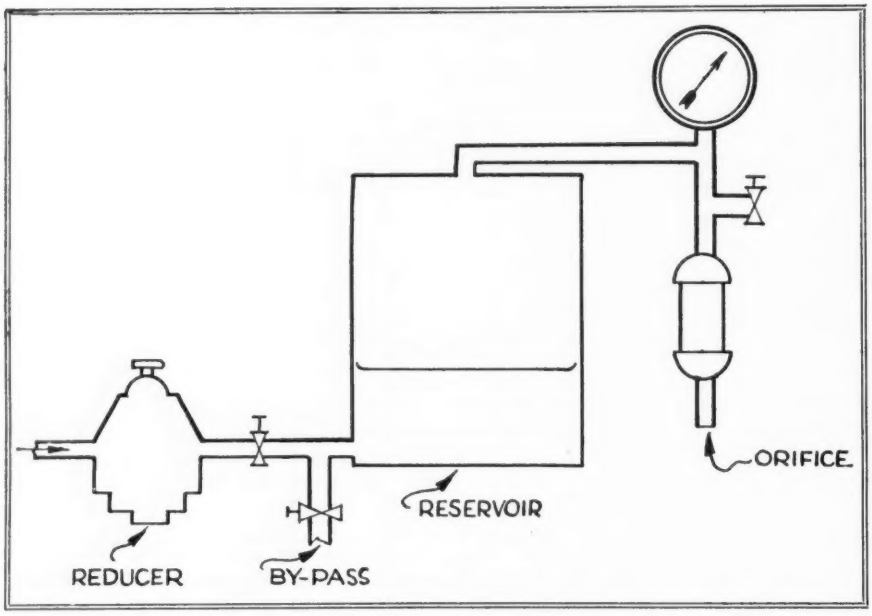

Device for testing very stiff greases

grams per minute flow at the pressure indicated by the gage is determined.

Water in Grease

The A. S. T. M. method (D95-28), which consists of mixing the sample with gasoline of a specified narrow range boiling point and distilling under a reflux condenser fitted with a trap to catch the water, is perfectly satisfactory for greases containing ½ per cent or more water such as the usual calcium soap grease. It is much superior to older methods described in the literature where loss of weight in an open dish is weighed.

For greases which contain only a very small percentage of water, however, such as a soda soap "sponge" grease which should contain less than ¼ per cent, it is difficult to check results and not allow glycerine to be carried over. Although the boiling point of glycerine is far above the temperature at which distillation is conducted, glycerine is carried over by the "partial pressure" effect, and the long runs necessary to carry over the last traces of water from a grease dispersed in gasoline multiply this effect.

The use of 100 cc. water-saturated xylol (boiling point 140-145 degrees C.), which is a much better solvent for the soaps in grease, permits the liberation of all the water within a 40 minute run during which time the amount of glycerol carried over is negligible.

Therefore, while gasoline, as now generally used, is as satisfactory as xylol for greases containing large amounts of water or where extreme accuracy is not required, for accurate work, xylol as first proposed is much superior. A commercial mixture of coal tar solvents of approximately the same boiling point will serve as well. To serve the same purpose of liberating the water from the grease, C. L. Cook proposed adding 10 gr. powdered fused potassium bisulfate $K_2S_2O_7$ with the usual charge of gasoline. The bisulfate effectively breaks up the grease and allows all the water to be boiled over into the trap in one hour. This modification checks with the xylol method and will be convenient for petroleum laboratories which do not happen to have xylol at hand.

Melting Point

As most lubricating greases melt by progressive softening without showing any sudden change or any recalescence point, any method for determining melting point must have all the variables arbitrarily defined. Of the many methods which have been offered, certain fundamental requirements enable us to develop discretion as to which to prefer.

The classic method for melting point of organic substances, using a speck of sample in a capillary tube, gives an indefinite end point. A larger amount of sample in a larger tube (Stock) or a sample in a tube subjected to added weight or to hydrostatic pressure (Gillette) gives variations in the temperature read due to variations in the moving force. Methods which require preliminary melting of the sample are unsuitable for a standard because many greases do not return to their original condition after melting.

Methods using a coating of grease on the thermometer bulb (Pohl and A. S. T. M. D127 for petrolatum) give variable results because the grease itself shields the thermometer from the heat, more or less depending on the thickness of film, and prevents it from registering the true temperature. If the film on the bulb happens to be so thin that its weight is less than the yield-value of the melted grease, it will not drop.

The ring and ball method used for asphalt is not applicable to soft greases.

The ideal melting point method should not require immersion of the sample in any liquid, because it is impractical to choose one liquid which will neither dissolve nor react with any of the various samples. For this reason, a method which makes use of an air bath has been found more desirable as a standard. The sample is suspended alongside the thermometer bulb in a glass test tube, 2.5 x 100 millimeters, which is centered in a copper oven 150 millimeters diameter by 150 millimeters high, with two mica windows, 6.3 millimeters diameter, in opposite sides for observation.

After experimenting with Holde's ring, with a wire gauze basket and other supports, we have found best uniformity when using 6.35 millimeters square loop of three turns of 1.59 millimeters diameter aluminum wire, clamped as close as possible alongside the thermometer bulb. The grease is pressed into this loop by using two spatulas, thus insuring a size of sample always the same. This type of support holds size of sample large enough so that the whole mass drops within a short temperature range.

Rate of heating is an important variable which must be standardized. It is probable that the safe limit is about 2½ degrees C. per minute.

Analysis

The Standard Methods of Analysis, A. S. T. M., D128-27 are satisfactory for making a complete analysis. Our laboratory has found that the use of a centrifugal instead of a soxhlet to separate the petroleum ether layer from the residue after breaking up the sample with potassium bisulfate saves much time and is more accurate, because the centrifuge throws down all the water from the petroleum ether layer which carries some K HSO, with it, and would affect the subsequent titration.

The A. S. T. M. analytical method does not provide for a separate determination of free mineral matter, distinct from total mineral matter or ash, yet such material, if silicious or aluminous, is gritty and its determination is accordingly important in indicating the value of a sample of grease for lubricating purposes. Mineral matter, such as lime or soda, which is combined with fat to form a suitable soap is of course not gritty and is a proper constituent of a grease, yet it appears along with the uncombined minerals in an ash determination.

The Acheson Graphite Corp. laboratory has standardized a procedure for free mineral matter which consists of mechanically breaking up the sample of grease in benzol, heating to boil-

ing, filtering hot through an alundum crucible and weighing the residue. Graphite, if present, is then burned off and this loss in weight reported separately.

Free fat, not combined as soap, is more satisfactorily done on a separate sample instead of by titration of the bisulfate fusion oil layer. A 10 gr. sample mechanically broken up in petroleum ether (150 ccs. total) is centrifuged until completely separated and the upper layer of petroleum ether siphoned off. This is repeated twice. The three petroleum ether portions contain all the free fat, which can then be determined by refluxing with 10 ccs. ¼ N alcoholic KOH and titrating back with .5 N H Cl. in presence of 25 ccs. neutral alcohol.

We, therefore, use 4 samples for a complete analysis:

1. Soap and mineral oil, by A. S. T. M. bisulfate method.
2. Free mineral matter (and graphite), by filtering a hot benzol solution.
3. Free fat, by titration of petroleum ether solution.
4. Moisture, by distillation.

Many of the determinations included in a complete analysis of a lubricating grease are not necessary unless the manufacture of a duplicate is contemplated. For judging the lubrication ability, after having determined the nature of the soap, the important tests are; free mineral matter, water, melting point, viscosity of separated oils, iodine number of separated fatty acids.

Friction Tests

The ordinary friction tester designed to imitate conditions in a bearing, measures only viscosity unless operated in a very special manner. Where a large difference in lubrication ability exists between two samples, it is possible to run satisfactorily with one lubricant at even higher loads than that at which another lubricant shows incipient break down. Such comparisons are not quantitative nor very exact but often enable a conclusion as to relative merits to be drawn.

The coefficient of friction requirement included in the older government specifications (Navy 1401C) acts merely to penalize heavy bodied greases. However, devices which test lubricants at very heavy pressures where metal to metal contact is sure to exist and use a fresh surface for each test do actually measure lubricating ability. Such machines are those designed by Herschel and by Deeley.

Separation

A reproduction of the most severe conditions under which lubricating greases separate in practice may be made by applying pressure to the sample in an enclosure which is bounded partly by a fine pored filtering medium. Grease does not separate unless the oil can escape through pores which do not permit the soap globules to escape. In practice, oil separates from grease through leaky fittings, close clearance in bearings, and past the leather washer of a spring compression cup. A spring compression cup with a solid cap on the lower end, or a series of pipe nipples and elbows which provide resistance greater than the power of the spring in the cup, will separate free oil from any calcium soap grease. The simplified plastometer described in an earlier paragraph may be converted to an oil press by fitting the bottom of the chamber with wire gauze supporting filter paper. Five pounds per square inch applied to the brand of "pressure gun grease" which enjoys the largest sale in this country separated 11.6 per cent oil in 2½ hours.

Stickiness

This is one of the important physical characteristics of a lubricant for certain purposes, but no good standard test has been developed. In our laboratory we have a series of strips of sheet metal 15 x 85 millimeters, each of which is to be dipt to a depth of 25 millimeters into a sample of fluid grease to be tested, hung up to drip one hour and weighed. This method is not applicable to greases whose yield value exceeds a very low figure but gives valuable information on fluid gear greases. It is probable that a better method could be developed by using centrifugal force, rotating a 6-inch diameter sheet metal disk covered with the sample at a definite speed for a definite time or until no more of the lubricant is thrown off. The Du Nuoy surface tension balance might be modified to measure stickiness.

Acknowledgment

Grateful acknowledgment is made of the assistance of Messrs. D. S. Hake, C. L. Cooke and W. E. Lambert of the Acheson Graphite Corp. laboratories in the preparation of this paper.

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Changes in New Car Models

By John Younger

Editor Automotive Abstracts

New Hupmobile

Particulars of the new Hupmobile model were released on Oct. 5. This car is an 8-cylinder model in the $1500 price class.

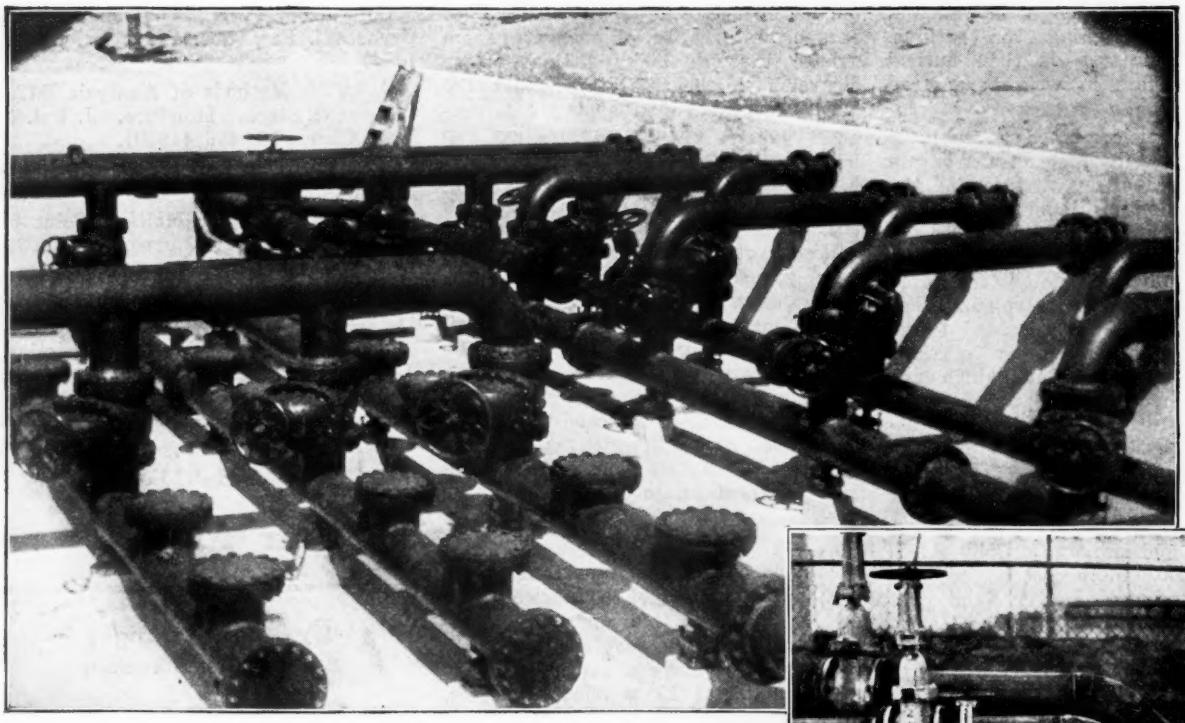
Hupmobile was one of the first companies to introduce complete force feed lubrication to all main, connecting rod and piston pin bearings. To accomplish this purpose the connecting rods are rifle-drilled their full length, providing force feed lubrication to the piston pin bearing, while the lower connecting rod bearing is diamond bored. In all, 46 points of the new Hupmobile engine are under force feed lubrication.

A positive action fuel pump replaces the vacuum of the former model. This feature eliminates the possibility of "running dry" of fuel on long mountain climbs or at sustained speeds. The capacity of the gasoline tank is 18 gallons. A dual carburetor of the plain tube type is provided.

The 1930 Buick

The 1930 Buick is offered in 14 models to be known as the 40, 50 and 60 series. The wheel bases have been slightly increased; the speed range has also been increased. Servo brakes, thermostatically controlled radiator shutters, hydraulic shock absorbers and other refinements have been added.

The gasoline pump has been retained, and the low-speed carburetor adjustment has been eliminated, the carburetor being calibrated to give the best all-round results. Special calibration for high altitudes is furnished where required. The centralized lubricating system has been retained in the 1930 Buick. All points of lubrication are very accessible and the entire car can be thoroughly lubricated in a very short time without getting under the car.



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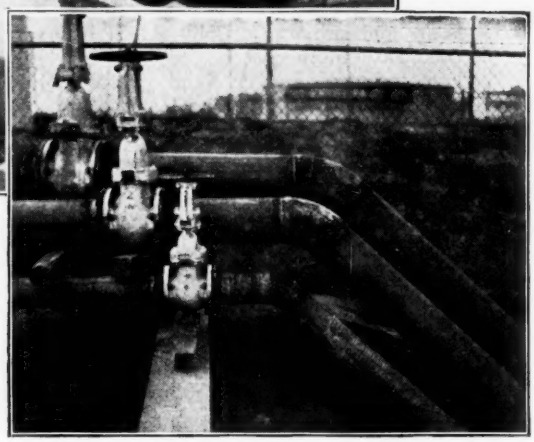

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Methods of Measuring Consistency Of Soap Thickened Oils

By D. P. Weld* and M. F. Pratt*

(*Presented before Petroleum Division, American Chemical Society, Minneapolis, Sept. 12*)

THE construction of the buret consistometer hereafter described was prompted by the need for an instrument and a method of test which could be used in the routine control of the consistency of soap thickened oils. A review of the literature concerning methods of determining the consistency of mushy materials has been given by Herschel and Bulkley [Ind. Eng. Chem., 19, p. 134 (1927)] along with a detailed discussion of the factors involved in the calibration of a simple buret consistometer.

In the following, a buret consistometer having removable and interchangeable capillary tubes is described and some results of consistency tests upon soap thickened oils are given. In the development of the buret consistometer to be described, the guiding principle was the necessity for an instrument and a method of test which would be effective and convenient in the ordinary routine testing laboratory.

The buret consistometer in its simplest form consists of an ordinary buret to which has been sealed a short length of capillary tubing, the buret being supported within a cylindrical glass water jacket. The procedure in making a test consists in allowing the contents of the buret to run out while the time required for the delivery of successive equal volume intervals is determined.

The average hydrostatic head causing the outflow of each volume interval is plotted against the average rate of outflow for the corresponding intervals. From these data, provided the consistometer has been properly calibrated, the consistency of the material can be evaluated, in so far as the consistency can be represented by numerical values for stiffness and yield shear value. It is obvious that a consistometer of the buret type can be used only with such materials as are sufficiently fluid to flow through a fairly small capillary tube at a reasonable rate without the application of pressure other than the hydrostatic head of the liquid itself.

When a consistometer is used in which the capillary tube is sealed to the buret, it is necessary to change the entire instrument in order to vary the size of the capillary tubes to suit the material to be tested. In order to avoid the inconveniences arising from the use of several separate instruments, a buret consistometer was constructed in which the capillary tubes were interchangeable.

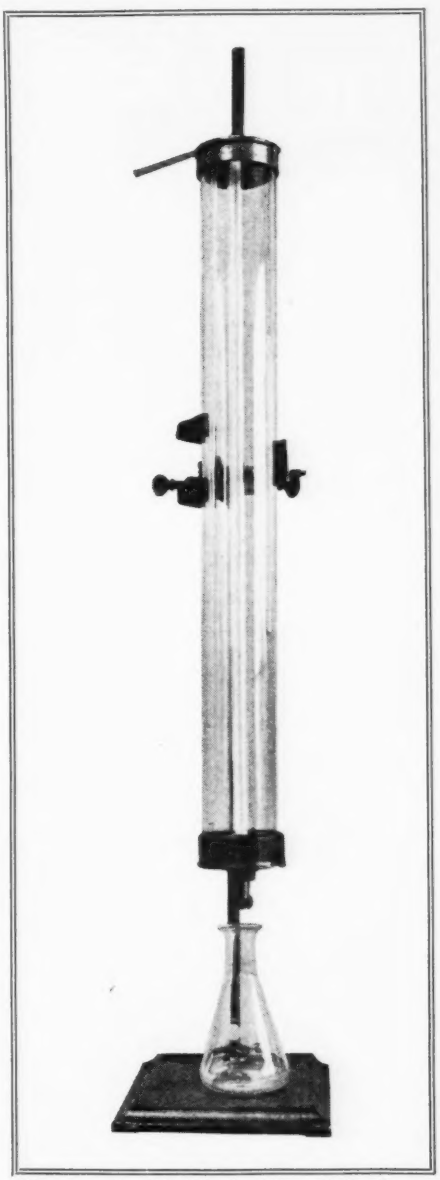

Figure 1—Modified Herschel buret consistometer

By this means, one buret can be fitted with any one of an assortment of capillary tubes having a selection of diameters to suit a variety of materials to be tested.

The Consistometer

The construction of the consistometer is shown in Figures 1 and 2. When the capillary tube is in place, the end of the capillary tube forms a part of the perfectly flat and smooth bottom of the buret chamber. The lower end of the capillary tube holder forms an annular space around the end of the glass capillary tube. In this manner, the formation of drops upon the end of the capillary tube is not interfered with and at the same time the capillary tube is protected from breakage.

With this form of construction, the length of the capillary tube can be measured with a micrometer. The capillary tubes can be changed without removing the buret from the water jacket.

Before the buret was installed within the water jacket, the distances from the bottom end of the buret to the zero mark and to each graduation showing a multiple-five volume was measured. The length of the capillary tubes was measured with a micrometer. By adding the length of the capillary tube to the distances of the various graduations from the bottom of the buret, the total distance from the graduations to the lower end of the capillary tube were obtained.

The average hydrostatic head corresponding to the delivery of each 5 cubic centimeter volume interval was calculated by Meissner's approximation formula

$$h = \frac{h_1 - h_2}{\log_e \frac{(h_1)}{h_2}}$$

Where h is the average hydrostatic head, h_1 and h_2 the initial and final heads respectively, for a particular volume interval. The average hydrostatic heads calculated as above were put in the form of a table for convenient use, this table being used with all capillary tubes having the same length.

The capillary tubes were calibrated by making runs with oils of known viscosity, all runs being made at 75

*General laboratory, Standard Oil Co. of New York, Brooklyn.

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degrees F. While making runs, the water in the water jacket was maintained at 75 degrees ± 0.2 degrees F., by the addition, as necessary, of small portions of hot or cold water. The water bath was stirred by means of an air jet located close to the bottom of the water jacket.

The time of outflow of each 5 cubic centimeter portion of liquid was measured by the alternate use of two separate stop watches. The general procedure used in making a run was exactly as that described by Herschel and Bulkley. (Ibid. 19, 134 (1927).)

Figure 3 shows the pressure-flow data obtained for two capillary tubes. These curves are representative of two or three check runs. Individual measurements of the time of outflow varies by as much as 1.5 per cent in some cases, while the variations of the slopes of the curves were small fractions of this amount.

The curves drawn through each group of points are straight lines passing through the origin. This is simply a statement that the accuracy of the test is such that the effects which would be expected to produce curvature in the pressure flow line, and which would cause the line to have an intercept other than at the origin are not measurable in the present case.

The well known equation for stream line flow of a viscous liquid may be written

$$\frac{u}{\rho} = \frac{\pi g d^4 h}{128 L q} - \frac{mq}{8\pi L}$$

in which the following notation is used.

$\frac{u}{\rho}$ = kinematic viscosity = $\frac{\text{viscosity (poises)}}{\text{density (grams per cc.)}}$

q = rate of flow (cc. per second)

d = effective diameter of capillary tube (cm.)

L = length of capillary tube (cm.)

g = acceleration of gravity = 981 cm. per sec.^{2}

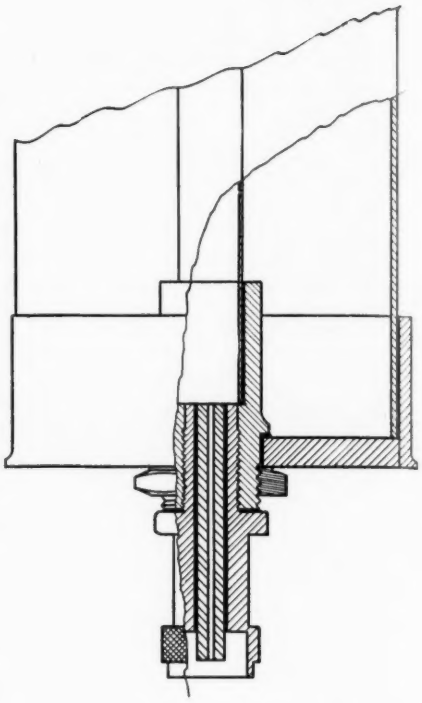


Figure 2—Detail of capillary tube holder and bottom of water jacket, modified Herschel buret consistometer

m = coefficient of kinetic energy correction, for which constant value 1.12 is usually assumed

h = average hydrostatic head causing flow (cm.)

Since the pressure-flow curves are assumed to be straight lines passing through the origin, the term $\frac{mq}{8\pi L}$ is, for the present purpose, negligible and the diameter of the capillary tube can be calculated from the pressure-flow data by means of the equation

$$d^4 = \frac{u}{\rho} \cdot \frac{(128qL)}{(\pi gh)}$$

The yield shear value (f) and stiffness (S) are defined in terms of data obtained with the buret consistometer by the following equations

TABLE I

	Oils Used in Calibration	Capillary Tube No. 1 Length 4.08 cm.			Capillary Tube No. 2 Length 4.08 cm.		
	Kinematic Viscosity at 75°F. Poises	Density at 75°F.	Diameter cm.			Diameter cm.		
	(u/ρ)	(ρ)	(d)	C_1	C_2	(d)	C_1	C_2
(A)	0.264	0.840	0.0976	0.000536	5.86	.....	.....	.....
(B)	0.331	0.865	0.0974	0.000532	5.85	.....	.....	.....
(C)	1.207	0.905	.....	.....	.....	0.1195	0.00120	7.19
(D)	1.403	0.911	.....	.....	.....	0.1192	0.00119	7.17
	Average Values		0.0975	0.000534	5.86	0.1193	0.001195	7.18

$f = 5.86\ p$ $\qquad$ $7.18\ p$

$S = 0.000534 \frac{P-p}{q}$ $\qquad$ $0.0001195 \frac{P-p}{q}$

(A) Technical White Oil
(B) White Rose Oil
(C) No. 1 Red Oil
(D) Medium Motor Oil

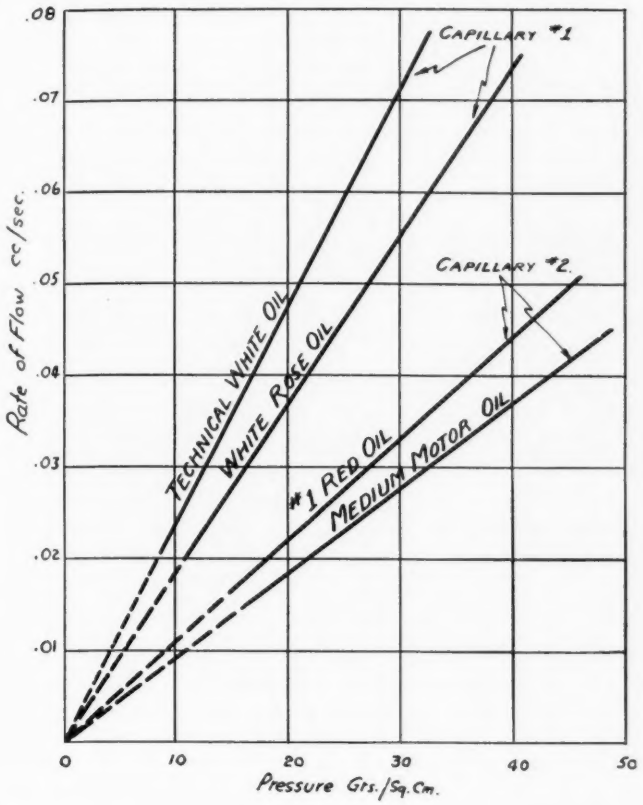


Figure 3—Pressure-rate of flow curves of oils used in calibrating capillary tubes of buret consistometer

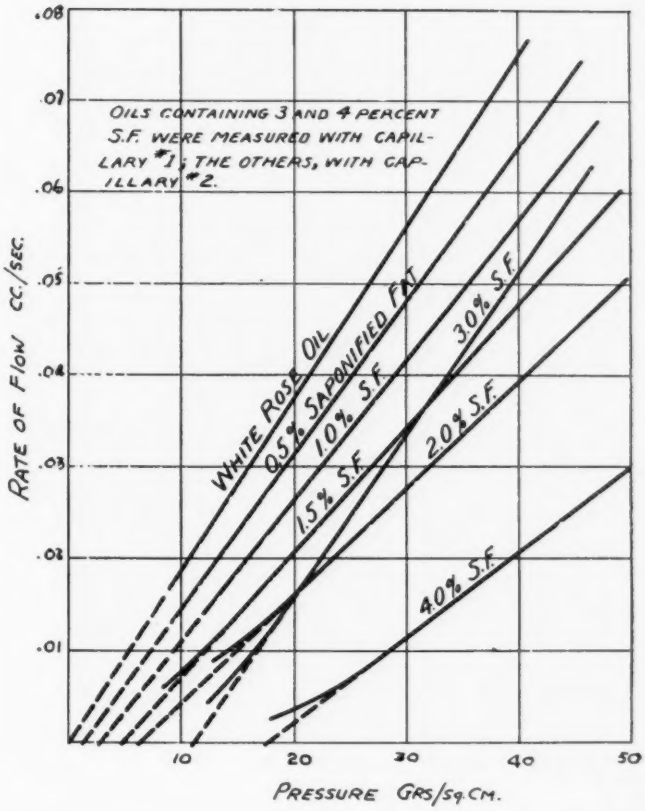


Figure 4—Pressure-rate of flow curves of soap thickened oils made from White Rose oil

$$f = \frac{pdg}{4L} \quad \text{and} \quad S = \frac{C_1 (P-p)}{q}$$

in which p is the pressure in gm./cm.² obtained by multiplying the density of the oil by the intercept in cm. of the pressure-flow graph upon the pressure axis, $C_1 = \frac{\pi g d^4}{128L}$, and P is any pressure in gm./cm.² corresponding to a head which on the graph which corresponds to a rate of flow of q cc./sec. In practice it is convenient to express the yield shear value as $f = C_2 p$, in which $C_2 = \frac{dg}{4L}$.

Table 1 shows the values of various constants of two capillary tubes. Each capillary tube was calibrated with two separate oils with the results shown in the table.

Consistency of Soap Thickened Oils

A number of soap thickened oils were compounded by adding various amounts of a white lime grease to two technical white oils and two lubricating

Table 2

Diluent Oil Used	Saponified Fat Content, Percent By Weight	Density at 75° F.	Capillary Tube Used	Pressure at Zero Rate of Flow gm./cm.² (p)	Ratio of Pressure to Rate of Flow $\frac{(P-p)}{q}$	Yield Shear Value Dynes/cm.² (f)	Stiffness Dyne-Sec./cm.² (S)
Technical White Oil..	0.0	0.840	No. 1	0.0	419	0.0	0.224 (1)
Technical White Oil..	1.0	0.841	No. 1	25	500	14.8	0.267
Technical White Oil..	2.0	0.843	No. 1	60	642	35.6	0.344
Technical White Oil..	3.0	0.844	No. 2	98	435	70.3	0.520
White Rose Oil.....	0.0	0.865	No. 1	0.0	534	0.0	0.285 (1)
White Rose Oil.....	0.5	0.865	No. 1	12	595	7.1	0.318
White Rose Oil.....	1.0	0.866	No. 1	28	649	16.2	0.347
White Rose Oil.....	1.5	0.866	No. 1	45	744	25.4	0.398
White Rose Oil.....	2.0	0.868	No. 1	61	855	35.6	0.458
White Rose Oil.....	3.0	0.869	No. 2	110	559	79.8	0.669
White Rose Oil.....	4.0	0.871	No. 2	173	1085	124	1.290
875 Oil.....	0.0	0.867	No. 1	0.0	242	0.0	0.124 (1)
875 Oil.....	1.0	0.868	No. 1	26	304	15.3	0.162
875 Oil.....	2.0	0.870	No. 1	71	417	42.8	0.223
875 Oil.....	3.0	0.871	No. 2	112	286	80.0	0.342
885 Oil.....	0.0	0.890	No. 1	0.0	...	0.0	.....
885 Oil.....	1.0	0.891	No. 1	29	771	16.7	0.412
885 Oil.....	2.0	0.893	No. 1	66	1005	38.7	0.536
885 Oil.....	2.0	0.893	No. 2	61	454	43.7	0.542
885 Oil.....	3.0	0.894	No. 2	125	676	88.5	0.810

(1) These values are actually absolute viscosities in poises as determined by the consistometer.

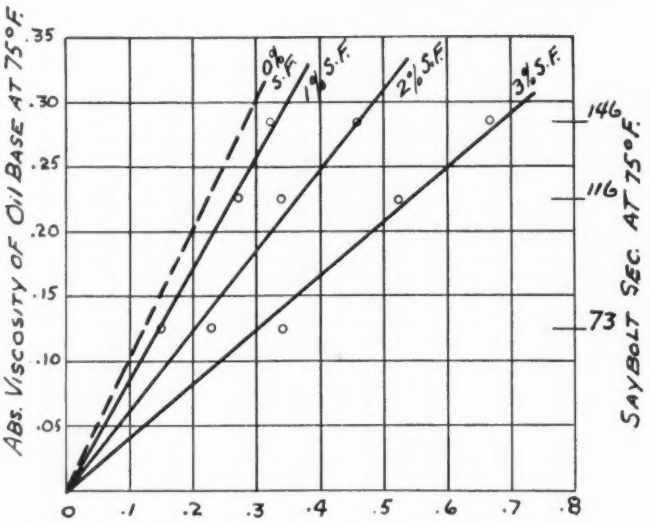


Figure 5—Relation of stiffness of soap thickened oils to viscosity of oil base

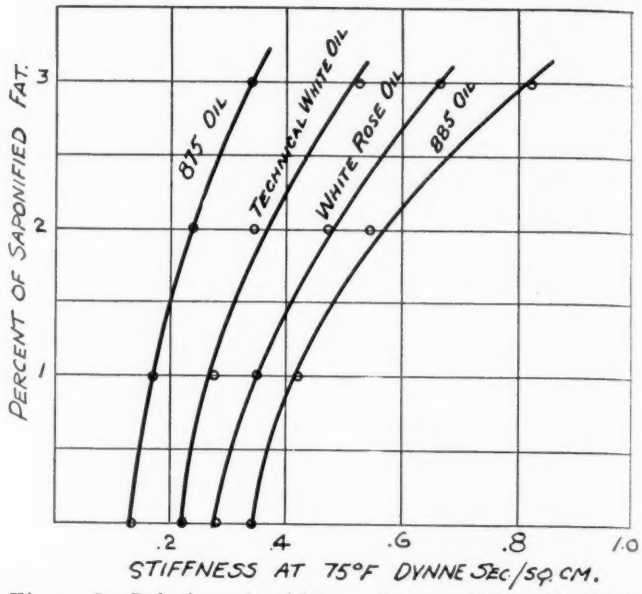


Figure 7—Relation of stiffness of soap thickened oils to saponified fat content

oils. The grease used contained 15.8 per cent of saponified fat and no unsaponified fat. The oil was worked slowly into the grease by hand, and the mixing was completed by slow mechanical rotation for two to three hours in round bottles. Care was required to conduct the mixing in such a manner that air bubbles were not incorporated in the oil.

After the soap thickened oils were mixed, they were filtered through a thick pad of fine steel wool in order to remove any lumps, lint or other debris which might clog the capillary tube.

The pressure-flow graphs for one group of soap thickened oils are shown in Figure 4. The results of tests upon all the oils are shown in Table 2. Figures 5, 6 and 7 show the various inter-relationships between the viscosity of the diluent oil, the amount of saponified fat present, and the yield shear values and stiffnesses of the soap thickened oils.

The yield shear values of the soap thickened oils were reproducible to within 2 to 3 units. Since the stiffness of the oils studied were raised from zero to 70 or more by the addition of 3 per cent of saponified fat, it is evident that the determination of yield shear value is sensitive enough to make it of use in defining the consistency of soap thickened oils. The stiffness determinations were reproducible to within 1 to 2 per cent.

After standing for about one month, some of the samples of soap thickened oils separated to a certain extent into a clear oil layer and a turbid lower layer which apparently contained all of the soap. These samples after gentle shaking appeared to be homogeneous, but the stiffness and yield shear value were considerably different from the original values. After mechanical mixing for 2 to 3 hours, the consistency tests returned to their original values.

It was found that there was not a good correlation between the consistencies of experimental hand samples of soap thickened oils and commercial batches compounded from the same materials and by the same formula. In general, the experimental samples showed greater stiffness and higher yield shear values than the commercial batches.

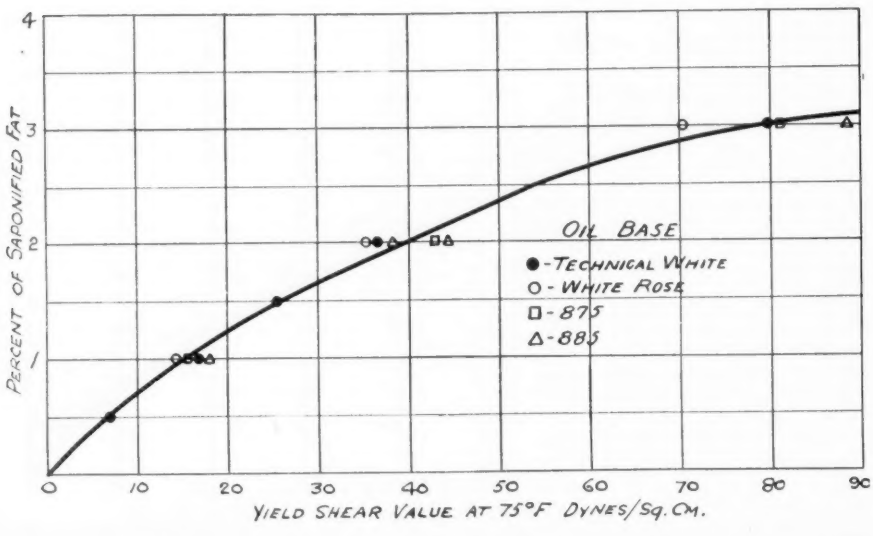


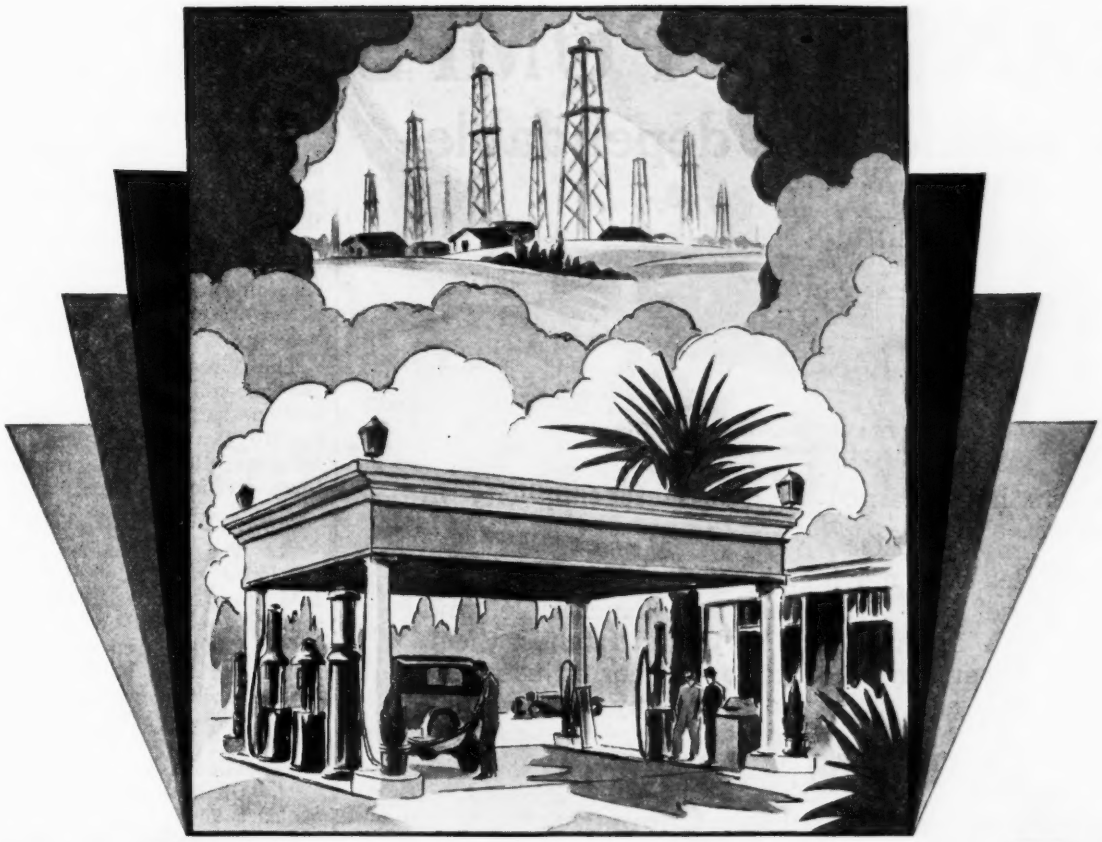
Figure 6—Relation of yield shear value of soap thickened oils to saponified fat content

Conclusions

The consistometer described has been in use for some time with good results in the control of the manufacture of soap thickened oils. Ordinarily, the commercial batch containing too little oil is made up as a rough match of the desired product. This product is tested, the estimated amount of oil required to give the desired characteristics added to a small sample and this material tested. From the tests upon this sample quite an accurate estimate of the amount of oil to be added to the whole batch can be made.

CLEVELAND, Oct. 11.—A booklet giving plans for interesting workmen in the safety movement has been published by the Policyholders Service Bureau of the Metropolitan Life Insurance Co. In the new booklet successful methods of organizing and directing safety committees among workers are described in detail.

WASHINGTON, Oct. 12.—The Bureau of the Budget has recommended an appropriation of $19,000 for the Federal Oil Conservation Board for the next fiscal year. Four years ago the board got an appropriation of $50,000.



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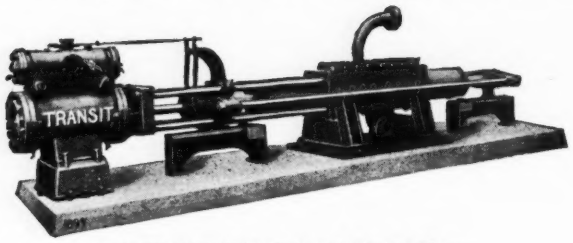

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Limited Field Seen for One-Stop Stations

CLEVELAND, Oct. 12.—There is room for only a limited number of one-stop automobile service stations, perhaps not more than 5000, and this type of station cannot economically exceed 8000 even though they should do all the replacement tire business, according to a survey just issued by Tires, a leading periodical of the tire industry.

The Tires organization has studied the one-stop station, or master tire station as the publication calls it, for 10 years. Its published survey contains 19 points, grouped under three divisions. The 19 points are:

WE FIND THAT

"1. The tire business, in the well developed station with a sales force, amounts to approximately 45 per cent of the total business transacted.

"2. $100,000 represents the annual volume of tire business which each station should average.

"3. Battery business, as a rule, accounts for about 10 per cent of the total business.

"4. Oil and gas should account for at least 25 per cent.

"5. Everything is incidental to tires in volume of sales and volume of profit measured in dollars. This includes washing, greasing, vacuum cleaning, wheel alignment, brake testing and relining, accessories, luncheonettes, etc.

"6. The properly organized super-service station treats everything but tires, tubes, vulcanizing and tire service as a feeder to the tire business.

"7. Most of the low-priced services do not prove profitable because of the problem of keeping the labor force fully occupied throughout each day. They may, however, be made worthwhile feeders for the tire business.

"8. Super-service station is a very poor nomenclature because it is so often misunderstood by the public. Motorists do not look upon variety of services as constituting super-service—they expect each and every type of service rendered to be of the super-quality. In other words, they expect a *super*-wash, a *super*-greasing, etc., all of which is more or less impractical. One-stop station probably fits the complete service station but there is no general understanding as to what constitutes complete service. We urge widespread use of Master Tire Station.

"Logical Diversifications—

"9. In developing from a tire dealer shop to a Master Tire Station the order of growth usually is: 1—Oil and gas; 2—Batteries; 3—Greasing; 4—Wheel aligning; 5—Brake adjusting, and 6—Washing. Accessories are introduced on a small scale at first and allowed to grow on a results-produced basis.

"10. The most important thing is

If all gasoline were Dubbs Cracked Gasoline, there would be far less knocking and a lot more pulling

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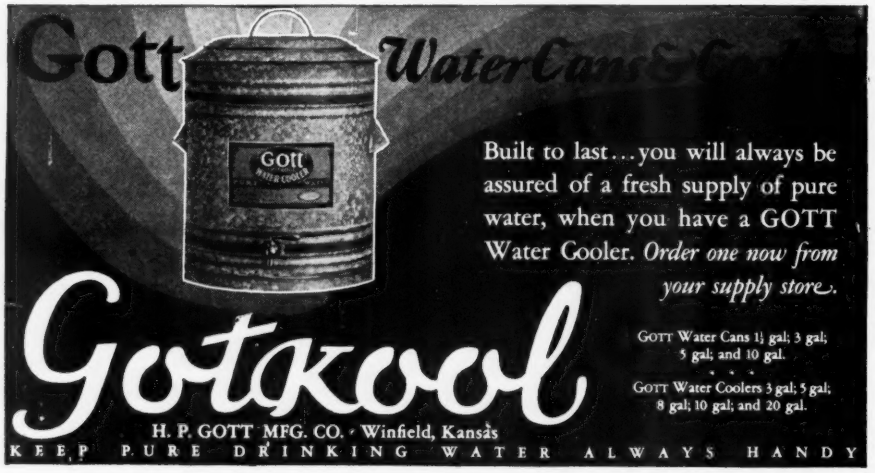
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GOTT Water Coolers 3 gal; 5 gal; 8 gal; 10 gal; and 20 gal.
H. P. GOTT MFG. CO. · Winfield, Kansas
KEEP PURE DRINKING WATER ALWAYS HANDY

BETHLEHEM
WAX PLANT EQUIPMENT

Filter Presses — *Wax Moulding Presses*
Wax Distillate Chilling Machines — *Scale Wax Cooling Drums*
Wax Testing Presses — *Paraffine Wax Sweater Plants*
Complete Wax Plants designed and built
Pumps, Stills, Towers, Condensers and other Oil Refinery Equipment
Oil Burning Systems — *Complete Power Plant Equipment*

BETHLEHEM STEEL COMPANY, *General Offices, Bethlehem, Pa.*

District Offices

New York · Boston · Philadelphia · Baltimore · Washington · Atlanta · Pittsburgh · Buffalo
Cleveland · Detroit · Cincinnati · Chicago · St. Louis · San Francisco
Los Angeles · Seattle · Portland

OILGRAM STAFF
at every
Important Oil Center

The OILGRAM has its own staff of trained petroleum market reporters at each of the four major refining and marketing centers—Mid-Continent, Western Pennsylvania, Eastern, Chicago.

These trained men are in close contact with the markets EVERY DAY. That, and that only, is their job.

The OILGRAM is the ONLY petroleum market service which has such an organization for *gathering information at its source.*

Try this daily market service for 3 months. See how profitably it fits into your business; 3 months for $25, or $75 for a whole year, cash in advance.

Send your order with check to the nearest mailing point.

TULSA—904 World Bldg.

CHICAGO—35 East Wacker Drive.

NEW YORK—342 Madison Avenue.

CLEVELAND—753 Penton Bldg.

location and the next most important is the size and price of the plot of ground needed. It is not necessary to start by offering a wide variety of services, nor is it necessary to start all services on an undercover basis—but it is well to have the land to permit expansion along these lines.

"11. Ignition and electrical services other than those having to do directly with batteries should be avoided in almost every instance.

"12. Motor service of a mechanical or repair nature should also be avoided.

"13. Gas and oil are the best feeders for future business. They should be included in every possible case even where development of a Master Tire Station is not anticipated.

"14. The talk about 50,000 or even 15,000 super-service stations is bunk. There is no economic justification for more than 5000 or at the most 6000 establishments of this character.

"15. You can prove this to yourself. $100,000 in tires is what the dealer must do to class as a Master Station. Some to be sure will do more and some less but the group as a whole will average out to make this a representative figure.

"16. There are 22,000,000 car registrations in the United States. They use an average of $38 per car per year insofar as tires are concerned.

"17. That means a gross annual tire business of $836,000,000, exclusive of original equipment with which tire dealers are not directly interested.

"18. By dividing $100,000 into $800,000,000 we find that there cannot be more than 8000 super-service stations if they do all the tire replacement business.

"They Don't Sell All the Tires—

"19. But from this theoretical maximum deductions must be made for the following:

"*A*—Some tires will always be sold through car dealers.

"*B*—Some tires will always be sold through mail order and chain stores.

"*C*—Some tires will always be sold through service garages.

"*D*—Some tires will always be sold through automobile accessory chain stores.

"*E*—Some tires will always be sold through storage garages.

"*F*—Some areas are so sparsely settled as to make Master Stations impractical.

"*G*—Even in metropolitan districts some tires will always be sold through the smaller type of dealer as is witnessed by the fact that even the large tire companies are organizing feeder dealers to operate in conjunction with well centered Master Stations. After making the most moderate deductions for these factors it is evident there will not be over 5000 Master Stations in all America and it will take fully three years to realize anything approaching such a total."

Oil Trademarks For Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"Gleamlights" No. 285,761. Will & Baumer Candle Co., Inc., Syracuse, N. Y. For candles.

"Sinclair" written on a green and red seal. No. 285,792. Sinclair Refining Co., New York City. For lubricating oil for household purposes.

"Sharfont" No. 287,846. Sharpsville Boiler Works Co., Sharpsville, Pa. For oil measuring and dispensing unit used for dispensing oils at filling stations, etc.

"Farmoil" "Farmers Union Co-operative Oil Assn. of Iowa" with fanciful picture. No. 286,047. Farmers Union Co-Operative Oil Assn. of Iowa, Des Moines, Iowa. For lubricating oils.

"Varsity" No. 286,712. The Pep Boys—Manny, Moe & Jack, Philadelphia, Pa. For penetrating oils.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written requests by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

40890.—**Kerosene, gasoline and lubricating oils,** Lagos, Nigeria, purchase and agency.

40911.—**Crude oils, gasoline and lubricating oils.** Tegucigalpa, Honduras, agency.

40936.—**Paraffin in bags,** Concepcion, Chile, agency.

40958.—**High quality lubricating oils,** Copenhagen, Denmark, purchase or agency.

40972.—**Automobile, tractor and airplane oils,** Prague, Czechoslovakia, purchase and agency.

40974.—**Mineral oils (unspecified)** Milan, Italy, agency.

41132.—**Lubricating oils and greases for automobiles.** Bratislava, Czechoslovakia, agency and purchase.

41153.—**Lubricating oils and greases,** Milan, Italy, agency.

41153.—**Road oil,** Milan, Italy, agency.

41174.—**Gasoline, cheap grade,** Saltillo, Mexico, purchase.

Hybnickel

HEAT AND ACID RESISTING CASTINGS

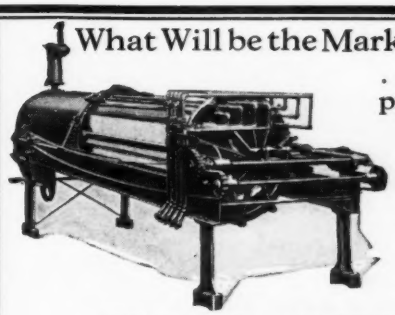
Several hundred tons of Hybnickel are now in use in oil refinery stills and superheaters.

One of Our Main Products Is—
Heat-resisting supports for Oil Stills.

VICTOR HYBINETTE

c/o The Pusey and Jones Corporation
Wilmington, Delaware

What Will be the Market Value of *Clean* Residuum?



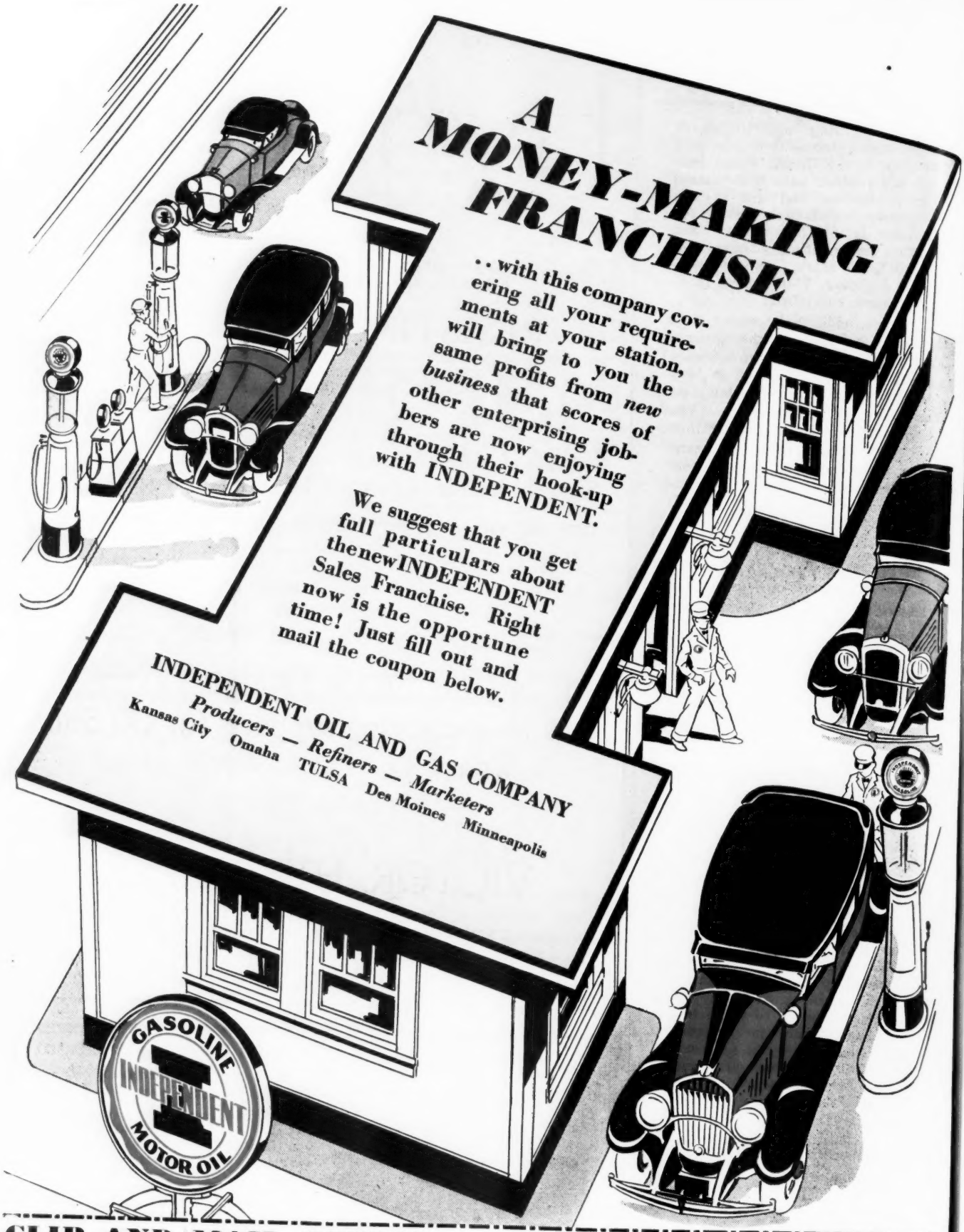
. . . the cost of cleaning it will probably be less than 5c a barrel.

OLIVER United filters have already shown sufficient evidence that they can clean up pressure still residuum at a very low cost, to interest every refinery operator.

Most operations are run at between 2c and 4c per barrel—*all costs.* None is over 5c. Why not investigate the Oliver United method for cleaning up residuum?

OLIVER UNITED FILTERS INC.

SAN FRANCISCO, Fed. Reserve Bank Bldg. NEW YORK, 33 West 42nd St.
CHICAGO, 565 Washington Blvd. SALT LAKE CITY, Felt Bldg.
LOS ANGELES, Central Bldg. LONDON, W. C. 1, 150 Southampton Row
PARIS, 63 Ave. des Champs Elysees.
Factories in U. S. A. *BRANCHES IN FOREIGN COUNTRIES* Cable Address: OLIUNIFILT


A MONEY-MAKING FRANCHISE
. . with this company covering all your requirements at your station, will bring to you the same profits from *new business* that scores of other enterprising jobbers are now enjoying through their hook-up with INDEPENDENT.
We suggest that you get full particulars about the new INDEPENDENT Sales Franchise. Right now is the opportune time! Just fill out and mail the coupon below.
INDEPENDENT OIL AND GAS COMPANY
Producers — Refiners — Marketers
Kansas City Omaha TULSA Des Moines Minneapolis
GASOLINE
INDEPENDENT
MOTOR OIL

CLIP AND MAIL COUPON

INDEPENDENT OIL AND GAS COMPANY
Dept. 500, TULSA, OKLAHOMA

Please send me full particulars about the new INDEPENDENT Franchise.

Name _____

Address _____

TJ-12

Renewal Contracts by Mail Comprise 50% of Domestic Oil Sales

By E. L. Barringer
N. P. N. STAFF WRITER

CHICAGO

MAILING renewal contracts to current customers, keeping salesmen on the street, and direct mail pieces have been found effective by the Shaffer Oil & Refining Co. in merchandising domestic burner oils in Chicago. Similar sales efforts are used in Milwaukee and other northern sales territory of Shaffer.

Renewal contracts are mailed to current customers on May 1. A letter accompanies the contract reminding the customer that his present contract expires soon, and asking him to sign up for the next season. Returns from this mailing comprise about 50 per cent of the next winter's business.

Another portion of the coming season's business, about 25 per cent, is obtained through follow ups on these customers. To customers not responding to the May 1 mailing another contract is mailed on June 15. Salesmen then call on customers not responding to either letter.

Shaffer has six salesmen on the streets of Chicago soliciting fuel and domestic burner oil business. These salesmen, of course, turn in tips on possible customers for other petroleum products, just as other salesmen turn in tips on burner oils.

Each salesman works in a district. Boundary lines are overstepped when another salesman may get a contract out of reach of the salesman in that territory. Such overstepping comes, for instance, when a burner is installed in the north side of the city and when possibly the south side salesman is a friend of the potential north side customer and would have an "inside track" in getting a contract over the regular north side salesman.

One of the six salesmen is a free-lance and covers any part of Chicago. He works on a commission while the others are on salary.

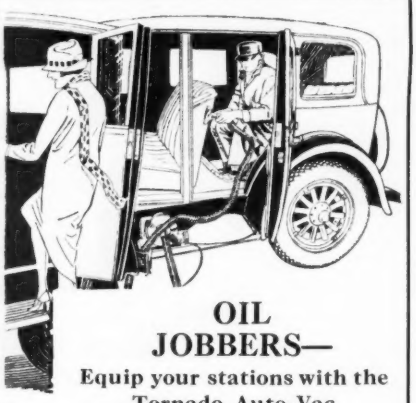
The making out of reports on customer calls and the keeping of follow-up appointments are important factors in sales supervision, said T. B. Murphy, manager of the fuel oil department.

"A call is a call only when a card is filled out properly," said Mr. Murphy. "When a salesman is slipping we can turn to the card index on his calls and usually find the cause. A salesman may hedge by claiming he has not made out cards on many calls. We are not interested in these 'conversation calls,' we want the card filled out."

Following up on return calls is considered highly important. Each card has space for filling in dates of follow ups. In the office two men work on these customer's cards, pulling out return calls so the salesman

Oil Heat DEPENDS ON The Oil!
Oil heat comfort depends on the promptness of delivery the certainty with which your tank is supplied, so that you never run short. You can depend on DEEP-ROCK service for unfailing deliveries, regardless of weather or other conditions.
Oil heat comfort depends on burning the correct oil for the type of burner you own Manufacturing all our fuel oils we were in position to immediately accept the specifications of the American Oil Burner Association recently established by the United States Department of Commerce, Bureau of Standards
Ten Good Reasons Why the Exacting Buyer Selects DEEP-ROCK Fuel Oil Service
(1) Noted for its dependable and efficient Quality Service for over fifteen years.
(2) The Shaffer Oil and Refining Company maintains a complete centralized storage plant and an adequate number of modern delivery trucks to serve you.
(3) Dependable source of supply As Producers, Refiners and Distributors we depend on no outside source for serving your heating oil requirements.
(4) Uniform Oil at every delivery. Oil burner manufacturers agree that oil uniformity is the most important feature of oil heating. Our oils are carefully refined from selected Mid-Continent Crudes under strict laboratory supervision to assure uniform quality.
(5) Our Oils are carefully filtered to eliminate dirt, water or basic sediment, thus assuring customers that every gallon delivered is 100% combustible fuel
(6) The most rigid check on deliveries of oil to assure customers of full measure at all times is maintained.
(7) The Shaffer Oil and Refining Company is a local organization, with local interests, employing only local help.
(8) Two distinct delivery services—"Keep-Fill" and "Will-Call." We agree to keep your tank supplied with oil without notice from you—or await your order—as you prefer it
(9) We furnish the correct oil for your burner, guaranteed to function satisfactorily
(10) The Shaffer Oil and Refining Company can give you the best in petroleum products and will take a personal interest in your heating problems
—CALL ON US . . . we'll recommend the correct oil for YOUR burner and keep you supplied

The advertisement on the spread of a direct mail piece. On the first and last pages is space for a sales letter

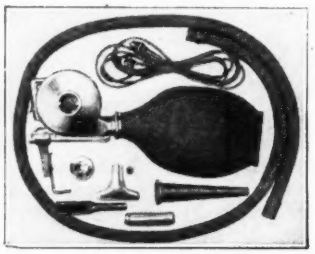


OIL JOBBERS—

Equip your stations with the Tornado Auto-Vac

Give your customers a 100 per cent vacuum cleaning job with the new TORNADO Auto-Vac Cleaner—the most powerful and efficient commercial auto cleaning device ever built. Hundreds of oil jobbers have standardized on the TORNADO—stimulates sales! Attach this advertisement to your letterhead and mail for special offer to oil jobbers. No obligation.

Breuer Electric Mfg. Co.
860 Blackhawk St., Chicago, Ill.

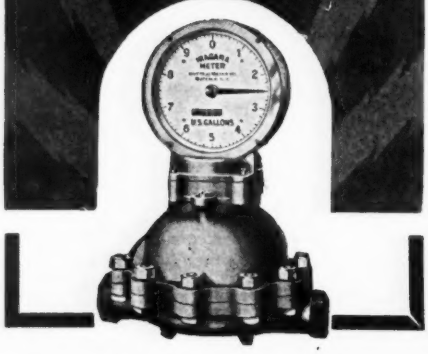


DEPENDABILITY

The Niagara meter never forgets—never jots down wrong totals—never delivers uncounted gallons of gasoline or oil that cut into profits. If the Niagara registers 50, fifty gallons have gone through—if 50,000, fifty thousand gallons have been delivered, and recorded so they'll be paid for. It is accurate.

The Niagara installed today is installed for years from now—its dependability is permanent. It is "rugged" structurally and simple mechanically. Send today for the new catalog of these familiar meters.

BUFFALO METER COMPANY
2889 Main Street
Buffalo, N. Y.



DOMESTIC DEEP-ROCK INDUSTRIAL BURNING OIL
DEPENDABLE DELIVERY

SHAFFER OIL AND REFINING COMPANY
300 WEST ADAMS STREET, CHICAGO
TELEPHONE RANDOLPH 5[illegible]

FUEL OIL AGREEMENT

Chicago, Ill., ... 19....

Seller: **SHAFFER OIL AND REFINING COMPANY.**

Buyer: ..... Telephone .....

Mail Address: ..... Deliver to .....

Seller agrees to sell and deliver and Buyer agrees to purchase, receive and pay for entire requirements of oil used for heating purposes at the above delivery address (specific grade being marked below) from above date until May 31, 19....., under the following terms and conditions:

Prices:

Seller's Tank Wagon Price on quantities delivered at one time subject to all declines; and to advances of not more than.....cents per gallon.

Check Grade Desired	KIND OF OIL	1 to 99	100 to 399	Over 400 Gallons
	DEEP-ROCK "FURNACE" OIL (38-40 Zero Cold Test)			
	DEEP-ROCK "WHITE HEAT" OIL (34-36 Zero Cold Test)	No deliveries of less than 400 gallons made		
	DEEP-ROCK "DOMESTIC HEATING" OIL (32-36 Zero Cold Test)	No deliveries of less than 400 gallons made		
	DEEP-ROCK "EXCELLO" FUEL OIL (28-32 Zero Cold Test)	No deliveries of less than 400 gallons made		
	DEEP-ROCK "24-26" FUEL OIL	No deliveries of less than 400 gallons made		
	DEEP-ROCK "18-22" FUEL OIL	No deliveries of less than 400 gallons made		

Seven days' notice of any change in Seller's Tank Wagon Price will be mailed to Buyer.
TERMS: Net Cash on Delivery or Seller's terms where credit has been established.

Advisory Service: SELLER MAINTAINS ADVISORY BURNER SERVICE AVAILABLE TO BUYER WITHOUT CHARGE.

Deliveries: Seller maintains two distinct delivery services: (1) KEEP-FILL, (2) WILL-CALL. Either optional to Buyer. (Check service desired in box provided at left below.)

Keep-Fill: ☐ To facilitate delivery and remove anxiety and uncertainty from Buyer's mind, Seller shall have the privilege of making deliveries of oil to the extent of the capacity of Buyer's storage on said premises at any time without notice or request. It is understood that minimum price for quantity up to the capacity of Buyer's storage will govern on all deliveries made under this KEEP-FILL system. (Gallons now in tank.....)

Will-Call: ☐ Should the Buyer not wish to take advantage of "KEEP-FILL" then Buyer will notify Seller at its office or nearest distributing plant when delivery is wanted. Seller urges Buyer to place orders at least one day in advance.

Seller will not permit its trucks to go on Buyer's driveways unless Buyer accepts all responsibility for any damage to his property which might result from such service.

No claims for shortage will be allowed unless formally presented at the office of Seller within twenty-four hours after delivery is effected. Each compartment has certified gauge capacities plainly marked. Seller urges Buyer to inspect compartments before and after unloading.

Seller will use extreme care in making deliveries but will not be responsible for spillage where installation is inadequate, where more than one length of hose is required or where tight hose connection cannot be made with a standard two-inch coupling.

Neither party shall be responsible for contingencies beyond their control.

Void unless approved by an official of the Company.

Approved: **SHAFFER OIL AND REFINING COMPANY**

..... Manager—Fuel Oil Division.

..... Representative

....., 19..... Buyer

Make of Burner ..... Size of Tank ..... Length of Hose ..... Estimated Requirements .....

Form of domestic burner oil contract used by Shaffer Oil & Refining Co. printed in red and blue

is back at the appointed time.

"Time passes rapidly, and five weeks can slip by while a salesman is waiting to return in two weeks," said Mr. Murphy. "A customer may ask a salesman to return at a certain time when he will decide on a contract, and it is necessary that the salesman return on the day promptly."

A contract is not considered a contract, either, until the salesman has arranged payments for deliveries with the customer. The salesman must report to his office whether the sale is to be c.o.d., open account or on what terms. This precaution is taken so there will be no misunderstanding between the truck driver, customer, or accounting department.

If a customer is buying on credit the back side of his card has space for listing his occupation, place of employment, banking place, and current credit accounts. This information is obtained by the salesman through the course of his sales talk or by direct questioning.

Leads for salesmen come from oil burner manufacturers or distributors, personal friendships, or from the direct mailing list. Most oil distributors maintain friendly relations with some burner manufacturers or distributors who cooperate when a new installation is made.

Registration of underground storage tanks, which includes those for domestic burner oils, is required in Chicago. But this requirement is disregarded in most cases; not more than one installation being registered in a week at the city hall. The fee was $15, but a reduction to $2.50 did not bring in any more registrations. However, in cities where an accurate check is kept on installations these would be leads for the salesmen.

Personal friendships account for sales also. This business may come

from a burner owner who is friendly with a salesman or some employee of the company. Again it may come from an auto owner who uses Shaffer gasoline or motor oil and turns to this supply when he installs an oil burner.

The direct mailing list is open to salesmen for obtaining leads. This list, of 40,000 persons or institutions, is divided into two classifications. Names also are segregated as to type of installation.

CUSTOMERS comprise the first classification. Through the mail they receive notices of price changes, occasionally an enclosure or from letter, and a card for hanging in the basement on which the truck driver records dumps. These basement cards also are mailed to some non-customers. It is hoped that they will be used in the basement, and when the non-customer may be disgruntled with his oil source he will be reminded that Shaffer sells burner oils.

Four page folders, with a letter on the front, and a printed advertisement are used for non-customers. These folders are printed in colors, the one illustrated is in red and black, and on good coated paper stock. Enclosures are used frequently for all products, some of them on burner oils. Return cards are used with mailings in late April and early May.

In line with sending out printed matter in colors, the contract also is kept attractive. It is printed in blue and red. The contract is in triplicate form, two for the office and one returned to the customer.

While direct mail pieces for a list of 40,000 names are expensive the company believes that they are an effective merchandising aid.

Data are not kept on the sales efficiency of the salesmen, but the company keeps in touch with the amount of business they send in.

"A glance at the pile of customer cards tells the story," said Mr. Murphy. "If a successful salesman has a big stack of cards and an unsuccessful one has a small stack there is the story. A salesman cannot sign three contracts with two calls. He has a better opportunity to sign three contracts on 100 calls."

In addition to the regular fuel oil sales force all company employees may turn in domestic heating oil business. Even service stations attendants may sell, and they are given placards for their station as well as sales helps through company publications and supervision*.

A commission of 3 per cent is paid employees when business is turned in. Fuel oil salesmen are on salaries, except the free lance salesman who is on commission. The 3 per cent figure

*"Shaffer Oil & Refining Co. Merchandises Furnace Oil Through Gas Stations," NATIONAL PETROLEUM NEWS, June 6, 1928, page 57.

1879 GOLDEN ANNIVERSARY YEAR 1929

before you buy

100% Pennsylvania Motor Oils

—read this

Sell a 100% Pennsylvania Motor Oil—YES—and build up your business with FREEDOM 100% Pennsylvania Motor Oils—made from 460-470 flash Bright Stock (Sharples process) and 100% Pennsylvania Crude high flash Neutrals.

The former is made in the Coraopolis plant, the latter in the Freedom plant, of The FREEDOM Oil Works Company—an organization celebrating its fiftieth year of specialization in the refining of 100% Pennsylvania Crude, its Golden Anniversary of fair dealing.

Deliveries can be made in tank cars, compartment tank cars, barrels, or drums. Write for quotations.

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 31

Also available for immediate shipment

460-470 flash, minimum 85 Visc., low cold test Bright Stock (Sharples process).

FREEDOM 100% Pennsylvania Crude high flash Neutrals.

100% Pennsylvania Motor Oils, blended to your own specifications from FREEDOM 460-470 Bright Stock and FREEDOM 100% Pennsylvania Crude high flash Neutrals.

FREEDOM 600 Steam Refined.

FREEDOM filtered low end point Kerosene.

THE FREEDOM OIL WORKS COMPANY
Freedom, Penna.

Established 1879

Refineries at Freedom and Coraopolis, Pennsylvania

FREEDOM

Form 461 20M 6-29

Name.....

Address.....

Buyer..... Phone No.....

Burner?..... Kind Oil? .....

Requirements?.....Cap. Tank?.....Ft. Hose?.....

Present Supplier.....

Date	Result of Call	Next Call

Salesman..... [OVER]

Record of a call made by domestic oil salesmen of Shaffer Oil & Refining Co. On the reverse side is space for credit information

may be taken as representing the sales cost on burner oil business.

This commission may amount to a considerable sum for employees who have worked up a following of steady customers buying oil each season from Shaffer. Some office employees, for instance, receive commissions amounting to about 60 per cent of their regular salaries during the heavy consuming months.

Shaffer does not countenance efforts to break a competitors's contract. A potential customer is a potential customer until he signs a contract. If the business goes to a competitor the potential customer receives direct mail pieces. When the contract is up for renewal Shaffer then considers it proper to have a salesman seek the business. Shaffer considers attempts to break a competitor's contract injurious to the company as well as the entire oil industry, Mr. Murphy said.

Adjustment of oil burners by the company is confined to regulation of air and pressure by a one-man advisory department. A record of his calls is kept for an analysis each season to determine causes of trouble.

Shaffer has been cooperating with the Oil Heating Institute, burner manufacturers and the Bureau of Standards to obtain specifications for burner oils by grade numbers. Burner manufacturers, under a proposed plan which Shaffer has aided, would attach a plate showing the grade of oil recommended, and the oil would be merchandised by grade numbers.

For quick distribution Shaffer has seven storage yards in the metropolitan Chicago area. Two forms or fills are made the "keep fill" and the "will call" methods. The customer designates which filling service is desired when he signs his contract.

Under the "keep fill" system the company assumes the responsibility for keeping the customer constantly supplied with fuel. The customer's tank is filled automatically as required. All the customer does is pay the bill, all trouble of watching his supply of oil and notifying the company when he needs a dump is taken from his shoulder. If the "will call" method of ordering is wanted the company makes deliveries as ordered.

CLEVELAND, Oct. 10.—Diesel electric type boats may soon be plying on feeder rivers as part of an inland waterways system now being formed, it is reported in Domestic Commerce, published by the United States Department of Commerce. The company plans to establish first express tow service between Cincinnati and New Orleans.

Name .....

Address..... Phone.....

Burner?..... Kind Oil?.....

Nature of Complaint

.....

.....

Result of Investigation

.....

.....

.....

.....

.....

Card filled out on a complaint call

"The Independent Retailer Is Here To Stay"

IN THE field of retail distribution of petroleum products the independent can be regarded as a permanent factor, says C. G. Sheffield, vice-president in charge of sales, Standard Oil Co. of New Jersey.

The oil companies are doing what they can, in the way of sales helps, advertising and so on, to keep him in business, Mr. Sheffield goes on in an interview published in the Sept. 5th issue of Printers' Ink.

"I doubt if there is any intention to crowd him out of business and to take retailing wholly out of his hands. Among the oil companies, the highest percentage of direct retail business yet attained by any oil company that I know of is 40 per cent. The average, I should say, is considerably lower than that."

The interview with Mr. Sheffield follows:

"While we bend every effort to improve our retailing methods, we protect our retailer customers. We're spending money, not to finance them, but to help them prosper. In April, 1927, we established a dealer publication that has a circulation of 35,000. Into that publication goes every month the best information that we can assemble for the dealer's benefit. It carries pictures and descriptions of model stations, detailed descriptions of successful methods—not theoretical stuff, but practical methods that are being applied by capable retailers in our territory. It carries information on technical and mechanical subjects—charts, for instance, that disclose the lubricating points of every make of automobile in general use.

"The dealer publication, important as it is, is merely an index to a general policy of passing on to the independent whatever we are able to learn about successful retailing. In this respect, our own service stations serve as laboratories. In our own stations we've learned what merchandising-at-the-point-of-sale can do.

"Some years ago we conducted a study of the methods and manners of the men in our own stations. We examined every man on two counts—selling and service. If in the routine of serving customers he offered a single suggestion that might directly affect sales—if, for instance, he asked the customer, 'Shall I fill the tank?'—that suggestion counted as a score in selling. And if, in serving the customer, he performed any act not specifically requested and not required by the routine of the transaction—if, for instance, he cleaned the windshield or checked and filled the radiator—then that act counted as a score in service.

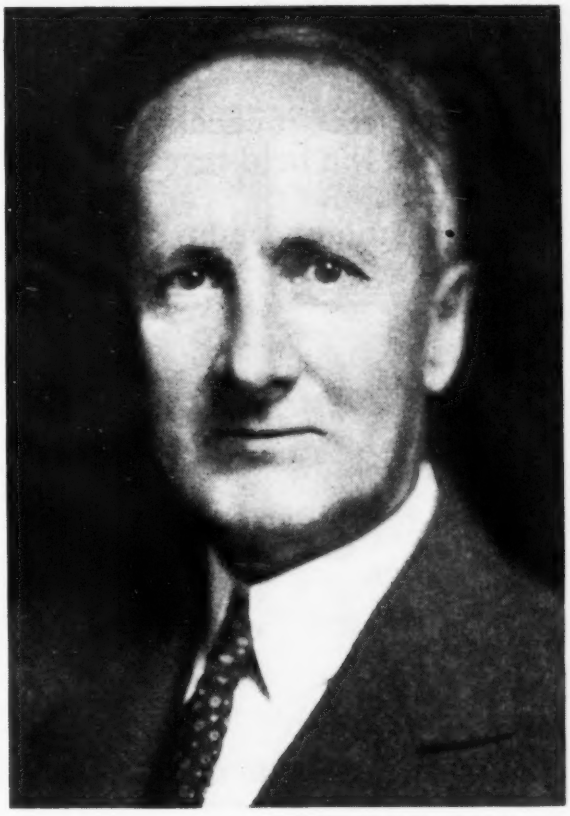


Photo by Blank & Stoller, Inc.

C. G. Sheffield
Vice president, Standard Oil Co. of New Jersey

"OUR survey disclosed that on the combined qualities of selling and service—two qualities that bore directly on our volume—our own men rated, on the average, just 20 per cent.

"We tackled the job of boosting that average. We raised our standards of employment; and, to insure that we'd attract higher-grade men, we provided incentives. For each station we established step-up salary levels to the end that a man who would use his head and expend extra effort toward building business, might increase his income by climbing to the higher levels. We established a line of promotion through the service station upward into supervisory jobs and into general sales. And we hold fast to that line. Thus the man who takes a service-station job actually knows that he needn't be a service-station attendant all his life—on a service-station attendant's pay. We devised and placed in operation a plan by which to teach our station men how to sell larger volumes of our product and, at the same time, win a larger measure of the public's good-will.

"Today in our stations you'll find a different atmosphere. On the whole—for, of course, there are exceptions—our men are alert and courteous and thoughtful. And each of them sells more volume.

"We've seen what that sort of merchandising can do. And we've passed on the discovery—simple as it is, but highly important—to our independent dealers. As a result, it's not merely in a Standard-operated station today that an attendant will impress you by his care and his thoroughness and his salesmanship, but in many an independent station.

"It has been said that the wayside filling station is passing, to be supplanted by the filling station de luxe. Undoubtedly, just as in other lines of merchandising, there is a high turnover among filling-station retailers. The business requires comparatively little capital; and, although the distributor may adopt the policy of looking carefully into prospects and possibilities before encouraging a new outlet to open, the fact remains that the number of pumps along the highway doesn't seem to be diminishing.

"And as to the station de luxe, the more de luxe it becomes, the closer it approaches the point of diminishing returns—the point where volume of sales fails to produce an adequate return on the investment. On gasoline, which constitutes the bulk of filling-station business, the profit margin is very small. A given station can ac-

BIGGEST PUMP SUCCESS OF THE WHOLE YEAR

A recent check-up of our office records and in the field reveals that from the standpoint of appearance . . . efficiency . . . *results*, the truly outstanding pump of the year is the

American OCTAGON "Economee" Pump

with the famous Whirlwind Pumping Unit.

A real asset to any station, its shapely octagonal lines commanding attention . . its satisfactory operation making friends of all motorists, operators, station owners.

Quality is built into the American OCTAGON "Economee" - - - so is *Service*. Result - - actual figures show that the MAJORITY of marketers have reordered during the year, some *many times*. And we are enjoying the biggest business in our history.

WRITE FOR NEW BULLETIN

The AMERICAN OIL PUMP & TANK CO.
1713 DALTON ST., CINCINNATI, O.

commodate only so many cars at its pumps. To most motorists, gasoline is just a casual purchase, and the driver, who, approaching a station, sees that the pump spaces are all occupied is likely to drive on to the next station. To increase its volume, the station must spread out—and occupy a considerable area of ground that, in most instances, is fairly expensive. And if the station is enlarged by building it into the air and on the upper floors, adding facilities for oiling and greasing, then the management is confronted by the problem of increased operating costs in a business in which the average unit of income is fairly small. Whether on the ground level, or on the upper floors of a building, automobiles are bulky things to handle and house.

"In general, while it is true that a station operated by a big distributor enjoys certain advantages, it must not be forgotten that the independent dealer has his advantages, too. Because the business is his own, he doesn't need to be persuaded to give it his conscientious attention. Rather often the business is a family affair, and its labor expense as a result is low. The independent dealer isn't handicapped by any eight-hour day. He doesn't need to pay the wages of a double crew of attendants to get the business of the early morning and the highly productive evening hours. And if he's alert and intelligent, as are many independents today, he can learn just as much about the science of retailing as can the bigger distributing company."

ON THE LAZY BENCH

National Petroleum News

"Does your fiancee know much about automobiles?"

"Heavens, No! She asked me if I cooled my car by stripping the gears."

—Sohio Sales

* * *

William: How did you break your leg?

Bill: I threw a cigarette in a manhole, and stepped on it.

—Doherty News

* * *

"Well," said Dante, grinning, "I'm the man that put Hades on a pain basis."

—Field Flashes

* * *

Willing Teacher

Exasperated Traffic Cop: "Say, lady, do you know how to drive a car?"

Fair Motorist: "Why, yes, I think so. What is it you wish to know?"

—Magnolia Oil News

* * *

Then there was the doctor who cured a patient of a severe case of hiccoughs by scaring him. He told him he'd probably have them for weeks.

—Doherty News

* * *

Cop: Isn't this a speakeasy?

Voice Behind the Door: Y-y-es, sir.

Cop: Well, live up to your name and don't make so much noise.

—Field Flashes

* * *

Night Club Manager—Where's our bouncer tonight?

Hostess—He tried to talk back to his wife, and they're still working on him.

—Doherty News

The sedan was parked at the side of the road and as the man drew near he could hear noices of a struggle within. He could hear a rustle, probably of silk, and the muffled panting of a man. The body of the car swayed slightly to and fro. He heard a curse and again the muffled panting. He crept softly around to the side and looked into the window and saw—

A man trying to fold a road map the same as it had been.

—The Water Tower

* * *

Jack and Jill sped down the hill
A curve they met was sharp,
The car upset, Jack's rolling yet,
And Jill is playing a harp.

—Sohio Sales

* * *

"Say," one neighbor asked another excitedly, "do you know a fellow down your way with one leg named Oliver?"

"I'm not sure," returned the other doubtfully, "what's the name of the other leg?"

—Doherty News

* * *

In Japan you can tell if a girl is single or married by looking at her hair. In America you can't tell if it's a girl!

—Field Flashes

* * *

Mother (to little girl who had been sent to the hen house for eggs): "Well, dear, were there no eggs?"

Little girl: "No, mummie, only the one the hen uses for a pattern."

—Doherty News

En-ar-co
MOTOR OIL
White Rose
GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

Heavy Duty Folio

$17.35

367—The best constructed folio we have developed. Made from the best 6-oz. smooth black cowhide. Comfortable handles made to carry all the weight, relieving the strain on the seams. Reinforced bottom protected with studs. Three pockets. Two inner cases may be carried.

Less 10% for Cash
Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage
614 Delaware, KANSAS CITY, MO.

Research Program Enables Advertiser To Place Space Effectively

By Allen S. James
N. P. N. STAFF WRITER

TULSA

THE day of hit-or-miss advertising is passing. Today, careful research and definite programs for reaching prospects with a minimum of waste effort make many advertising campaigns reasonably sure of success before the first advertisement even appears in print.

An interesting instance of such methods was the intensive drive for wholesale and retail dealers put on the first half of this year by the Marland Refining Co., now the Continental Oil Co.

The advertising department of Marland under the direction of Joseph E. Moorhead and its agency, Tracy-Locke-Dawson, Inc., of Dallas, set out to secure as nearly complete advertising coverage as possible in all counties in which they marketed. At the same time they desired to avoid any unnecessary duplication.

One of their first acts was to gather from the daily newspapers in every state in which the company marketed its products, the papers' circulation by cities and counties. The circulation of each paper then was platted, first on a state map, and then re-platted on county maps. The platting was done by coloring the areas covered by the papers.

There naturally were some blank spaces, and some spaces which overlapped. The newspapers which had the best coverage were then chosen. These papers were chosen as much for their wide circulation outside the immediate localities in which they were printed, as they were for the coverage in the immediate vicinity.

Farm papers then were solicited for circulation data, and finally the weekly newspapers. The coverage of the farm papers and weekly newspapers was platted on the county and state maps, and the papers which more nearly filled the gaps which had been left after the daily newspapers had been platted, were selected as the medium for the Marland advertising.

Mr. Moorhead's department did not stop with the compilation of the circulation data. Each county in each state in which the advertising was to be carried on was listed, and for each county figures were obtained showing the total number of homes in the county, the total newspaper circulation, the percentage of paper coverage, the total number of farms, the percentage of farm paper coverage, the total combination circulation and the percentage of coverage of total homes. The first sheet of this tabulation is shown in Figure No. 1.

Another compilation then was prepared listing the state, the

All Counties reached by Marland Advertising

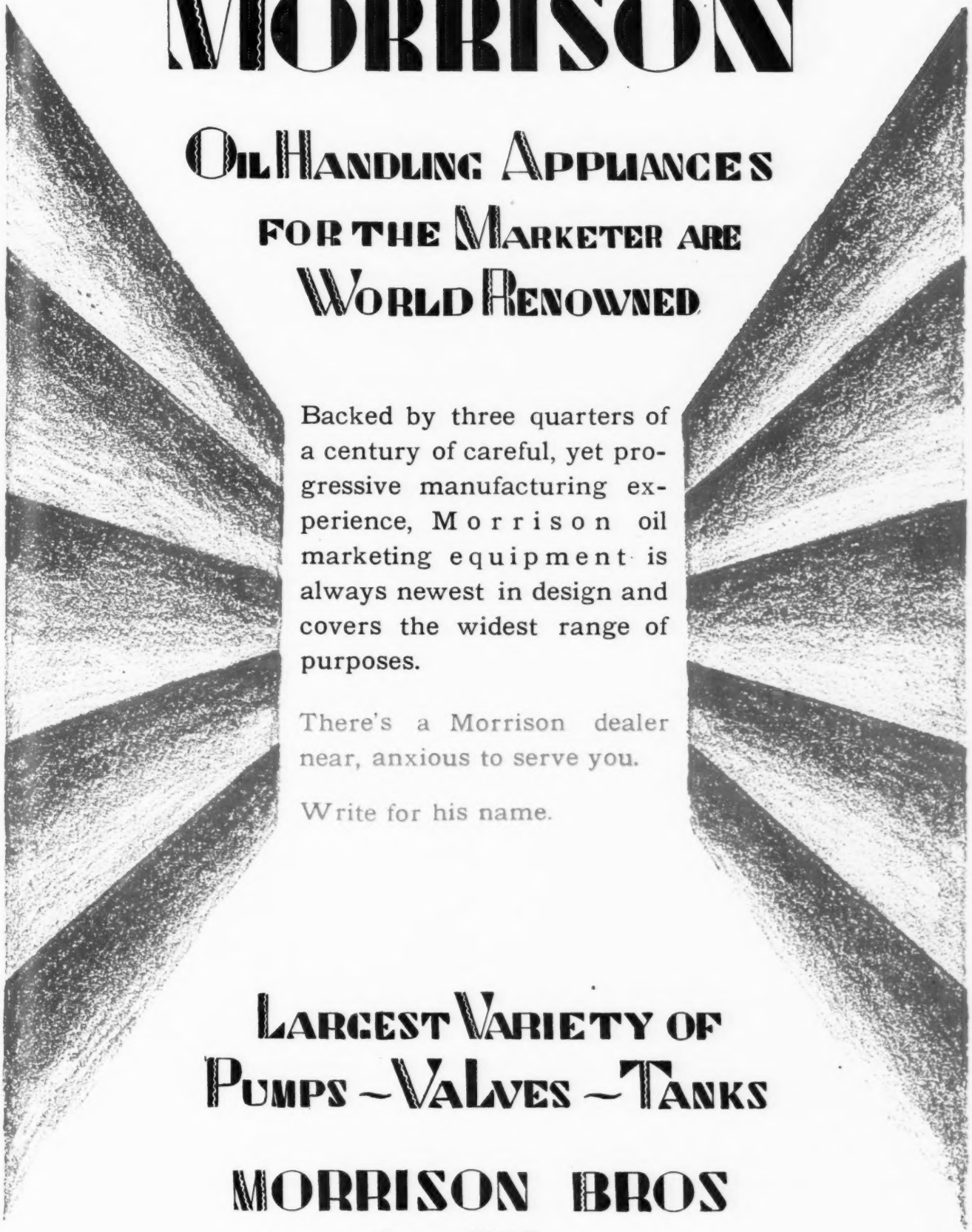
Showing total homes, total farms, motor cars and per centage of homes covered by advertising

COUNTY	Total No. of Homes	Total Newspaper Circulation	% News Paper Coverage	Total No. Farms	Farm Paper Circulation	% Farm Paper Coverage	Total Combination Circulation	% Coverage of Total Homes
OKLAHOMA								
Adair	2,798	394	14	1,464	760	52	1,154	41
Alfalfa	3,834	2,270	59	2,363	1,608	68	3,878	101
Atoka	4,199	447	11	2,379	852	36	1,299	31
Beaver	3,106	669	22	2,375	883	16	1,552	50
Beckham	4,078	6,784	166	2,824	2,085	74	8,869	217
Blaine	3,681	6,063	165	1,908	1,839	96	7,902	215
Bryan	8,312	6,857	82	4,406	1,626	35	8,483	102
Caddo	7,374	8,098	110	5,074	3,951	78	12,049	163
Canadian	5,174	7,438	144	2,263	2,061	91	9,499	184
Carter	8,885	14,780	166	2,328	1,265	54	16,045	181
Cherokee	4,099	909	22	2,670	819	31	1,728	42
Choctaw	6,828	2,609	38	3,312	1,180	36	3,789	55
Cimarron	861	1,689	196	761	274	36	1,963	228
Cleveland	3,973	6,432	162	2,165	1,526	70	7,958	200
Coal	3,966	497	13	1,914	658	34	1,155	29
Comanche	5,788	10,879	188	3,021	1,645	54	12,524	216
Cotton	3,647	2,748	75	1,887	811	43	3,559	98
Craig	3,979	2,952	74	1,961	1,174	60	4,126	104
Creek	14,273	12,731	89	2,771	3,191	115	15,922	112
Custer	4,231	7,639	181	2,576	1,848	72	9,487	224
Delaware	2,954	326	11	2,399	748	31	1,074	36
Dewey	2,755	920	33	1,895	1,746	92	2,666	97
Ellis	2,592	1,527	59	1,834	909	50	2,436	94
Garfield	9,070	25,088	277	3,049	2,666	87	27,754	306
Garvin	6,422	4,603	72	3,631	2,410	66	7,013	109
Grady	7,147	12,000	168	3,820	3,058	80	15,058	211
Grant	3,847	5,645	147	2,573	1,674	65	7,319	190
Greer	3,226	3,336	103	1,912	1,508	79	4,844	150
Harmon	2,182	2,412	111	1,688	916	54	3,328	153
Harper	1,708	1,783	104	1,239	649	52	2,432	142
Haskell	3,977	1,003	25	2,678	987	37	1,990	50
Hughes	5,344	5,569	104	2,826	2,177	77	7,746	145
Jackson	4,598	7,299	159	2,751	1,734	63	9,033	196
Jefferson	3,530	518	15	2,001	1,183	59	1,701	48
Johnston	4,046	445	11	1,936	946	49	1,391	34
Kay	8,358	24,027	287	2,662	2,583	97	26,610	318
Kingfisher	3,858	4,776	124	2,527	1,455	58	6,231	161
Kiowa	4,920	5,515	112	3,184	2,400	75	7,915	161
Latimer	2,939	307	10	1,299	549	42	856	29
Le Flore	9,000	3,755	42	4,704	2,545	54	6,300	70
Lincoln	7,398	5,529	75	4,694	3,427	73	8,956	121
Logan	6,515	10,493	161	2,772	2,532	91	13,025	200
Love	2,462	146	06	1,659	420	25	566	23
McClain	3,826	2,916	76	2,393	1,426	60	4,342	113
McCurtain	7,702	618	08	4,366	1,535	35	2,153	28

Figure 1

MORRISON

OIL HANDLING APPLIANCES FOR THE MARKETER ARE WORLD RENOWNED



Backed by three quarters of a century of careful, yet progressive manufacturing experience, Morrison oil marketing equipment is always newest in design and covers the widest range of purposes.

There's a Morrison dealer near, anxious to serve you.

Write for his name.

LARGEST VARIETY OF PUMPS — VALVES — TANKS

MORRISON BROS

SINCE 1855

OIL EQUIPMENT HEADQUARTERS

DUBUQUE IOWA

Dealer Home Oil Co. At Coolwater, Kan.

County	Total Homes	Newspaper Circulation	% N. P. Coverage	Total Farms	Farm Paper Circulation	% of F. P. Coverage	Combined N. P. & F. P. Cir.	% Total Home Cov. N.P. & F.P.
Comanch	1208	518	43%	755	437	79%	955	79%

Figure 3

counties in which the newspapers and farm papers were published, the cities in which they were published, their circulation and the number of automobiles in the county. A portion of this compilation is shown in Figure No. 2.

This data was then printed and made up into books or portfolios, one for each salesman or jobber. To make it doubly helpful to the salesman additional loose-leaf sheets were prepared enabling him to show the prospect just what his particular county or locality was to receive in the way of coverage. These were inserted in the back of each book. A sample of one of these sheets is shown in Figure 3. Mr. Moorhead said this feature proved especially valuable to the salesmen in their contracts with prospects. Proofs of all the advertisements also appeared in each book.

The actual amount of advertising done in many of the newspapers was determined largely by the volume of business the dealer or jobber handled. Every dealer with the possible exception of a few of the largest, received advertising help in proportion to his sales volume. His orders from the refinery were weighted and the appropriation for his territory determined accordingly.

There were some instances, however, where certain outside factors necessitated the adoption of a special policy. Mr. Moorhead explained that the company had one jobber who sold a large percentage of his goods to one customer and the advertising in that jobber's territory accordingly was not as extensive as it was in other territories where the jobbers had a wider distribution.

In addition to the newspaper and farm periodical advertising the Marland company planned an extensive poster campaign. Throughout the advertising copy appeared the dominant figure of a robot, in full stride and carrying a banner on which was the Marland trade-mark—a triangle. The posters and much of the newspaper copy was prepared with moderne art.

Just how much value in dollars and cents the campaign meant to the Marland company could not be estimated with any degree of accuracy, but reports indicated, Mr. Moorhead said, that the effort made by his department to compile the data and arrange it for effective use by their salesmen was time and energy well spent.

NEWSPAPERS
CARRYING MARLAND ADVERTISING

County	Town	Newspapers	Circulation	Cars
ARKANSAS				
Arkansas	Stuttgart (W)	Grand Prairie Leader, *Th.*	2,500	4,216
Benton	Rogers	News	1,325	5,499
Johnson	Clarksville	Herald-Democrat	1,630	1,601
Pope	Russellville (W)	Courier-Democrat, *Th.*	1,900	2,396
Pulaska	Little Rock	Democrat	33,693	22,314
Pulaska	Little Rock	Gazette	42,173	22,314
Sebastin	Fort Smith	Times-Record and S. W. American	23,421	1,355
Washington	Fayetteville	Democrat	1,916	5,712
COLORADO				
El Paso	Colorado Springs	Gazette and Telegram	13,211	14,023
Las Animas	Trinidad	Chronicle-News	5,093	6,505
Pueblo	Pueblo	Star-Journal	11,266	14,621
ILLINOIS				
Kankakee	Kankakee	Republican	8,527	10,851
Pike	Hull (W)	Enterprise, *Th.*	986	5,676
Sangemon	Springfield	Journal	33,002	23,408
Sangemon	Springfield	Register	31,508	23,408
INDIANA				
Knox	Vincennes	Commercial	6,395	10,821
Lake	Hammond	Times	20,808	40,492
Perry	Tell City	News	2,510	2,341
Tippecanoe	LaFayette	Journal and Courier	23,244	10,944
Vanderburg	Evansville	Courter and Journal	43,291	19,637
Vanderburg	Evansville	Press	22,223	19,637
IOWA				
Lee	Keokuk	Gate City	5,687	7,593
Wright	Clarion (W)	Wright County Monitor, *Wed.*	2,025	5,641
KANSAS				
Atchison	Atchison	Globe	7,115	5,651
Bourbon	Fort Scott	Tribune-Monitor	3,620	5,758
Butler	El Dorado	Times	4,710	12,971
Cherokee	Columbus (W)	Light, *Th.*	2,850	9,028
Cowley	Winfield	Courier	4,935	12,637
Cowley	Arkansas City	Traveler	5,636	12,637
Dickinson	Abilene	Reflector	1,738	7,903
Douglas	Lawrence	Journal-World	5,923	7,546
Edwards	Kinsley (W)	Mercury, *Th.*	1,695	2,594
Ford	Dodge City	Globe	5,125	5,072
Finney	Garden City (W)	Telegram, *Th.*	3,000	2,348
Harper	Anthony (W)	Republican Bulletin, *Th.*	3,527	4,268
Harvey	Newton	Kansan-Republican	3,675	5,893

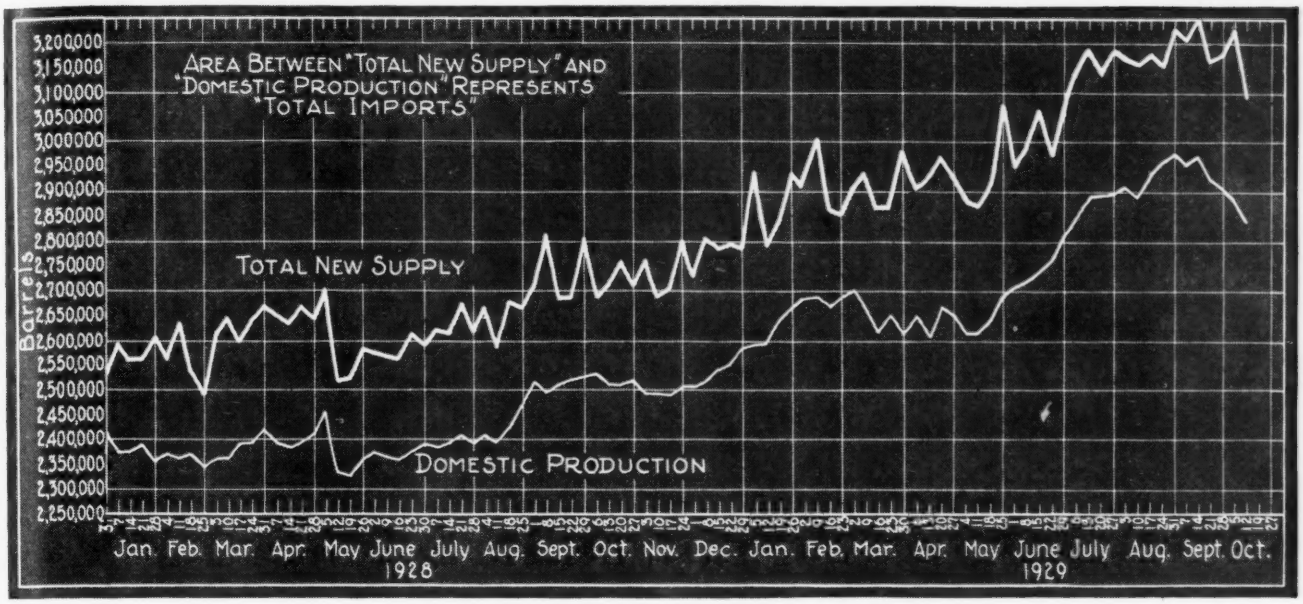
Note: In the above, (W) after the name of a town indicates that the paper is a weekly. The *Th.* or *F.* following the name of paper indicates publication date of Thursday or Friday, etc. (SW) indicates Semi-weekly. Otherwise paper is daily.

Figure 2

WICHITA FALLS, Oct. 11.—A new tank car naphtha and solvent marketer here is the Industrial Naphtha & Solvent Co., 516 Waggoner Bldg. W. C. Duncan, J. G. Rudy and C. W. Scharatt are the incorporators. Mr. Duncan is in charge of sales and operations.

Negotiations between Continental Can Co. Inc., and the Sociedad Industrial de Cuba, S. A., of Havana, Cuba, have been completed, resulting in the acquisition of the foreign company's assets and business by the Continental Can Co. Inc. The Sociedad Industrial de Cuba, incorporated in 1911, manufactures cans for packaging food and other products, such as talcum powder, shoe polish, paints, alcohol, oils, etc. In addition, the company manufactures bottle caps and lithographed signs.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

OKLAHOMA

	Oct. 12	Oct. 5
Allen Dome	24,200	24,550
Asher	7,200	7,500
Blackwell	3,800	3,800
Bowlegs	30,750	31,300
Braman	4,050	4,000
Bristow-Slick	21,000	21,800
Burbank	18,100	18,150
Carr City	9,700	10,650
Cromwell	7,800	7,800
Cushing	15,850	15,850
Davenport	1,350	1,350
Duncan District	7,900	7,950
Earlsboro	74,400	77,000
East Seminole	7,300	7,950
Fox	1,300	1,350
Garber	4,750	4,650
Graham	4,000	4,000
Healdton	12,550	12,550
Hewitt	7,750	7,750
Hubbard	1,800	1,800
Little River	81,950	80,350
Logan County	17,500	17,500
Maud	10,600	10,850
Mission	22,300	23,250
North Okmulgee	12,300	12,300
Oklahoma City	1,000	1,000
Osage (outside Burbank)	25,950	26,000
Papoose	3,300	3,250
Pearson	1,050	1,050
St. Louis	58,650	61,000
Sasakwa	12,200	12,700
Scholem-Alechem	12,750	12,800
Searight	11,500	10,950
Seminole	31,950	32,200
South Okmulgee	7,900	8,000
Thomas	750	800
Tonkawa	8,500	8,600
Wewoka	4,350	4,350
Yale-Jennings	6,500	6,500
Others	54,000	54,450
Total, Oklahoma	650,550	659,650
Decrease		9,100

KANSAS

Augusta-Fox Bush	2,950	2,950
Churchill	6,350	6,500
Eldorado-Towanda	13,050	13,050
Florence-Covert	950	950
Greenwood County	20,500	20,400
Oxford	3,900	4,000
Peabody-Elbing	3,250	3,250
Rainbow Bend	1,100	1,050
Russell	3,050	3,100
Sedgwick County	21,000	33,250
Others	36,000	36,000
Total, Kansas	112,100	124,500
Decrease		12,400

NORTH LOUISIANA

Bellevue	650	700
Caddo, light	15,350	17,900
Caddo, heavy	3,150	3,200
Cotton Valley	2,500	2,500
De Soto and Red River	3,150	3,200
Elm Grove	550	550
Haynesville	4,850	4,900
Homer	3,850	3,800
Pleasant Hill	1,050	1,000
Urania	5,700	5,600
Others	400	350
Total, North Louisiana	41,200	43,700
Decrease		2,500

ARKANSAS

Champagnolle	5,500	5,600
El Dorado	4,400	4,500
Lisbon	1,200	1,250
Nevada	1,050	1,000
Smackover, light	5,800	5,800
Smackover, heavy	45,400	45,700
Stephens	1,000	1,000
Others	100	100
Total, Arkansas	64,450	64,950
Decrease		500

TEXAS (Outside Gulf Coast)

Panhandle District

Carson County	9,300	9,400
Gray County	68,800	78,450
Hutchinson County	26,600	26,800
Wheeler County	600	7,000
Others	900	950
Total, Panhandle Texas	106,200	122,600
Decrease		16,400

North Texas

Archer County	18,700	18,850
Burkburnett	9,350	9,400
Electra	12,000	12,050
Iowa Park and K. M. A.	4,850	4,900
Montague-Cooke	17,200	17,350
Wilbarger	31,100	31,450
Others	800	850
Total, North Texas	94,000	94,850
Decrease		850

West Central Texas

Brown County	9,150	9,350
Callahan County	3,500	3,550
Coleman County	7,750	7,950
Eastland-Desdemona	7,000	7,000
Jack County	4,000	3,800
Palo Pinto County	500	550
Shackleford County	10,000	10,150
Stephens County	6,400	6,500
Throckmorton County	600	650
Young County	6,600	6,650
Others	700	700
Total, West Central Texas	56,200	56,850
Decrease		650

West Texas

Crane and Upton Counties	46,150	46,500
Crocket County	2,500	2,300
Howard County	37,900	37,500
Jones County	3,700	3,800
Mitchell and Scurry Counties	2,500	2,600
Pecos County	139,850	132,100
Reagan County	17,500	17,850
Winkler County	119,200	119,800
Others	2,600	2,700
Total, West Texas	371,900	365,150
Increase		6,750

East Central Texas

	Oct. 12	Oct. 5
Boggy Creek	3,300	3,150
Corsicana-Powell	6,700	6,750
Currie	400	400
Mexia	5,100	5,200
Nigger Creek	250	250
Richland	350	350
Wortham	1,000	1,050
Total, East Central Texas	17,100	17,150
Decrease		50

Southwest Texas

Dale	400	400
Laredo District	9,700	9,550
Luling	10,750	10,600
Lytton Springs	1,000	950
Refugio County	7,200	7,050
Salt Flat	38,400	39,900
Somerset	1,500	1,700
Others	1,200	1,300
Total, Southwest Texas	70,150	71,450
Decrease		1,300
Total, Texas (Outside Gulf Coast)	715,550	728,050
Decrease		12,500

GULF COAST

Coastal Texas

	Oct. 12	Oct. 5
Barbers Hill	19,750	19,150
Batson	1,300	1,350
Big Creek	4,500	4,750
Blue Ridge	2,400	2,400
Boling	1,300	1,400
Damon Mound	600	600
Goose Creek	5,600	5,500
Hull	10,250	9,450
Humble	12,000	6,700
Orange County	2,800	2,850
Pirece Junction	9,850	11,850
Raccoon Bend	8,600	8,350
Saratoga	1,000	1,050
Somerville	1,950	2,100
Sour Lake	2,800	2,650
South Liberty	6,500	6,950
Spindletop	23,100	23,050
Sugarland	11,250	10,950
West Columbia	6,700	5,900
Others	6,300	5,100
Total, Coastal Texas	138,550	132,100
Increase		6,450

Coastal Louisiana

East Hackberry	2,000	2,050
Edgerly	650	750
Evangeline	1,750	2,000
Lockport	4,100	4,300
Old Hackberry	2,800	3,250
Sorrento Dome	150	150
Sulphur Dome	8,700	8,900
Vinton	4,200	4,300
Others	2,250	2,500
Total, Coastal Louisiana	26,600	28,200
Decrease		1,600
Total Gulf Coast	165,150	160,300
Increase		4,850

ROCKY MOUNTAIN

Wyoming

	Oct. 12	Oct. 5
Big Muddy	2,300	2,200
Elk Basin	750	650
Grass Creek	2,150	2,250
Labarge	2,550	2,250
Lance Creek	200	200
Lost Soldier	4,150	3,500
Oregon Basin	5,200	5,300
Rock Creek	2,350	2,300
Salt Creek	32,450	34,300
Others	4,200	4,350
Total, Wyoming	56,300	57,300
Decrease		1,000

Montana

Cat Creek	1,250	1,300
Pondera	2,600	2,700
Sunburst	6,900	6,900
Others	50	50
Total, Montana	10,800	10,950
Decrease		150

Colorado

Florence	800	900
Fort Collins	1,900	2,000
Moffat (Craig)	1,250	1,250
Others	1,650	2,200
Total, Colorado	5,600	6,350
Decrease		750

New Mexico

Artesia	850	850
Balance Lea & Eddy Co.	3,000	2,750
Hogback	400	400
Rattlesnake	1,800	1,750
Table Mesa	100	*100
Others	400	400
Total, New Mexico	6,550	6,250
Increase		300
Total, Rocky Mountain	79,250	80,850
Decrease		1,600

CALIFORNIA

	Oct. 12	Oct. 5
Dominguez	8,500	9,000
Elwood-Goleta	25,000	24,800
Huntington Beach	42,500	43,500
Inglewood	23,000	23,500
Kettleman Hills	10,000	10,500
Long Beach	171,000	172,000
Midway-Sunset	70,000	70,000
Santa Fe Springs	265,000	275,000
Seal Beach	41,000	41,000
Ventura Avenue	63,000	63,500
Others	153,500	153,500
Total, California	872,500	886,300
Decrease		13,800

EASTERN

(Including Ill., Ind., Ky., O., W. Va., Pa., and N. Y.)	120,000	120,450
Decrease		450
Michigan	17,350	18,300
Decrease		950

*Revised.

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended October 11 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Oct. 11
Plants Reporting....	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)..	92,000	160,200	86,600	81,500	54,900	475,200
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs..	63,648 — 1.8	126,258 + 13.1	71,461 + 11.4	39,336 — 0.6	62,063 + 10.6	362,766 + 7.9
Da. Av. Other Oils...	8,094 — 18.7	6,012 — 47.8	1,392 — 64.3	1,191 + 15.3	2,964 — 1.8	19,653 — 33.2
GASOLINE—Gallons						
Stocks, Oct. 4.....	9,867,000	48,427,000	13,764,000	7,984,000	9,440,000	89,482,000
Prod. 10-4 to 10-11...	11,054,000 — 0.2	20,595,000 + 9.4	8,847,000 + 19.6	3,532,000 — 0.6	5,945,000 + 11.0	49,973,000 + 8.1
Ship. 10-4 to 10-11...	10,545,000 + 3.4	20,189,000 — 0.5	8,269,000 + 6.3	4,549,000 + 40.4	5,591,000 — 7.4	49,143,000 + 3.3
Stocks, Oct. 11.....	10,376,000 + 5.1	48,833,000 + 0.8	14,342,000 + 4.2	6,967,000 — 12.7	9,794,000 + 3.8	90,312,000 + 0.9
Ratio Sales to Prod...	95.4%	98.0%	93.5%	128.8%	94.0%	98.3%
KEROSENE—Gallons						
Stocks, Oct. 4.....	6,813,000	4,913,000	1,819,000	19,000	1,301,000	14,865,000
Prod. 10-4 to 10-11...	2,595,000 — 3.0	2,637,000 + 18.4	1,708,000 + 24.3	47,000 +370.0	497,000 + 22.1	7,484,000 + 11.8
Ship. 10-4 to 10-11....	1,350,000 — 40.0	1,797,000 — 30.7	1,755,000 + 2.1	13,000 — 38.1	644,000 + 17.3	5,559,000 — 22.1
Stocks, Oct. 11.....	8,058,000 + 18.3	5,753,000 + 17.1	1,772,000 — 2.6	53,000 +178.9	1,154,000 — 11.3	16,790,000 + 12.9
Ratio Sales to Prod...	52.0%	68.1%	102.8%	27.7%	129.5%	74.3%
STOVE DISTILLATE—Gallons						
Stocks, Oct. 4.....	2,236,000	5,529,000	1,259,000	187,000	94,000	9,305,000
Prod. 10-4 to 10-11...	377,000 — 33.9	1,138,000 + 16.9	282,000 + 48.4	133,000 — 28.1	320,000 +131.9	2,250,000 + 9.4
Ship. 10-4 to 10-11...	331,000 + 49.7	1,072,000 + 4.5	221,000 + 52.4	175,000 + 42.3	192,000 — 42.0	1,991,000 + 8.0
Stocks, Oct. 11.....	2,282,000 + 2.1	5,595,000 + 1.2	1,320,000 + 4.8	145,000 — 22.5	222,000 +136.2	9,564,000 + 2.8
Ratio Sales to Prod...	87.8%	94.2%	78.4%	131.6%	60.0%	88.5%
GAS OIL—Gallons						
Stocks, Oct. 4.....	4,445,000	37,640,000	4,199,000	11,917,000	5,339,000	63,540,000
Prod. 10-4 to 10-11...	1,463,000 + 10.7	2,010,000 — 54.0	972,000 — 19.7	789,000 + 12.6	1,836,000 — 25.2	7,070,000 — 23.8
Ship. 10-4 to 10-11...	1,673,000 — 4.9	914,000 — 65.1	404,000 — 70.7	379,000 — 7.6	2,355,000 — 31.5	5,725,000 — 40.4
Stocks, Oct. 11.....	4,235,000 — 4.7	38,736,000 + 2.9	4,767,000 + 13.5	12,327,000 + 3.4	4,820,000 — 9.7	64,885,000 + 2.1
Ratio Sales to Prod...	114.4%	45.5%	41.6%	48.0%	128.3%	81.0%
FUEL OIL—Gallons						
Stocks, Oct. 4.....	15,127,000	48,971,000	63,283,000	29,782,000	20,512,000	177,675,000
Prod. 10-4 to 10-11...	4,720,000 — 16.9	7,747,000 + 27.6	8,675,000 + 13.7	5,779,000 + 0.6	6,164,000 + 11.1	33,085,000 + 7.8
Ship. 10-4 to 10-11....	5,129,000 + 0.4	11,850,000 +191.7	6,953,000 — 4.9	7,094,000 + 2.9	5,781,000 — 6.1	36,807,000 +24.7
Stocks, Oct. 11.....	14,718,000 — 2.7	44,868,000 — 8.4	65,005,000 + 2.7	28,467,000 — 4.4	20,895,000 + 1.9	173,953,000 — 2.1
Ratio Sales to Prod...	108.7%	153.0%	80.1%	122.8%	93.8%	111.2%

Gasoline Produced by Various Methods, Week Ended October 11

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	7,051,000	63.8	13,682,000	66.4	6,887,000	77.8	3,292,000	93.2	1,964,000	33.0	32,876,000	65.8
Cracked.....	3,428,000	31.0	5,413,000	26.3	1,348,000	15.2	61,000	1.7	3,293,000	55.4	13,543,000	27.1
Natural.....	575,000	5.2	1,500,000	7.3	612,000	7.0	179,000	5.1	688,000	11.6	3,554,000	7.1
Total	11,054,000		20,595,000		8,847,000		3,532,000		5,945,000		49,973,000	

+ or — columns are % change over previous week.

Gasoline Stocks Increase, First Time in 14 Weeks

Staff Special—By Telegraph
TULSA, Oct. 14

A SIZABLE increase in crude runs to stills with an increase of 3,700,000 gallons in gasoline production while shipments increased only 1,500,000 gallons resulted in Mid-Continent refineries increasing gasoline stocks in week ended Oct. 11, so 93 refiners reported to NATIONAL PETROLEUM NEWS.

Crude runs were increased 26,400 barrels daily average. This is first time in 14 weeks that gasoline stocks have increased.

Gasoline production was 800,000 gallons greater than shipments, and stocks increased that amount.

Kerosene production increased 800,000 gallons while shipments were

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Oct. 11. Change in stocks figures from Sept. 13.

GASOLINE

	Gallons
Production	192,462,000
Shipments	195,601,000
Net change in stocks	—3,139,000
Ratio sales to production	101.6%

KEROSENE

	Gallons
Production	29,226,000
Shipments	27,550,000
Net change in stocks	+1,676,000
Ratio sales to production	94.3%

STOVE DISTILLATE

	Gallons
Production	9,020,000
Shipments	8,457,000
Net change in stocks	+563,000
Ratio sales to production	93.8%

GAS OIL

	Gallons
Production	32,449,000
Shipments	30,645,000
Net change in stocks	+1,804,000
Ratio sales to production	94.4%

FUEL OIL

	Gallons
Production	131,866,000
Shipments	138,596,000
Net change in stocks	—6,730,000
Ratio sales to production	105.1%

lower by 1,500,000 gallons. Stocks increased 1,900,000 gallons.

Stove distillate stocks increased 260,000 gallons. Gas oil production and shipments were both considerably lower than for week previous. Stocks increased 1,300,000 gallons. Fuel oil stocks were reduced 3,700,000 gallons. Shipments increased 7,000,000 gallons as compared with production increase of 2,400,000 gallons.

New Michigan Committee To Push Code

JACKSON, Mich., Oct. 14.—Intensive educational work on behalf of the national code of marketing ethics, through group meetings throughout the state, is the plan of the newly organized executive and conciliation committee of the Michigan Oil Men's Association. This committee was appointed on Sept. 24 by H. M. Dawes, chairman of the middle western regional committee of the code.

A letter has been sent out by the association to all local code promotion committee chairmen, telling them of this new committee, together with a bulletin to all oil companies in the state.

On this new executive committee are these Michigan oil men:

H. A. Coffin, White Star Refining Co., Detroit, chairman; H. H. Ragle, Michigan Oil Men's Association, Jackson, secretary; J. J. Cox, Michigamme Oil Co., Ann Arbor, treasurer; R. F. McConnell, Standard Oil Co. of Indiana, Detroit; W. S. Heyer, Indian Refining Co., Detroit; and J. J. Theisen, Theisen-Clemens Co., St. Joseph.

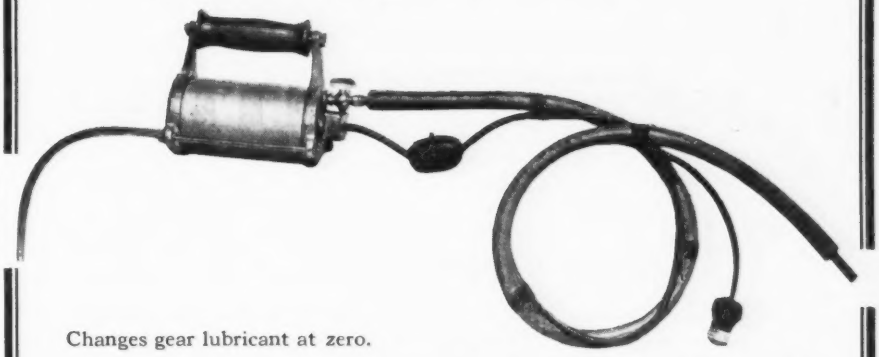
Group meetings to be held for discussion of the code beginning Oct. 15 include these points:

Oct. 15, at Flint, Durant Hotel, and at Pontiac, Hildebrandt Hotel; Oct. 16, Port Huron; Oct. 17, at Kingston; Oct. 18 at Bay City, Wenonah Hotel, and at Saginaw, Bancroft Hotel; Oct. 22, at Alma, and at Big Rapids; Oct. 23, at Muskegon, Occidental Hotel, and at Ludington; Oct. 24, at Traverse City and Petoskey; and Oct. 25, at Alpena.

Meetings already held during the first half of October included those at Detroit and Ann Arbor, Oct. 8; at Adrian and Kalamazoo, Oct. 9; St. Joseph and Hastings, Oct. 10; and Grand Rapids and Lansing, Oct. 11.

The Michigan association has done much work in connection with the adoption of the code, through dissemination of information in its official publication, and through group meetings in various parts of the state. The Michigan General State Committee on the code has been active for several months.

Introducing the Gresmelt



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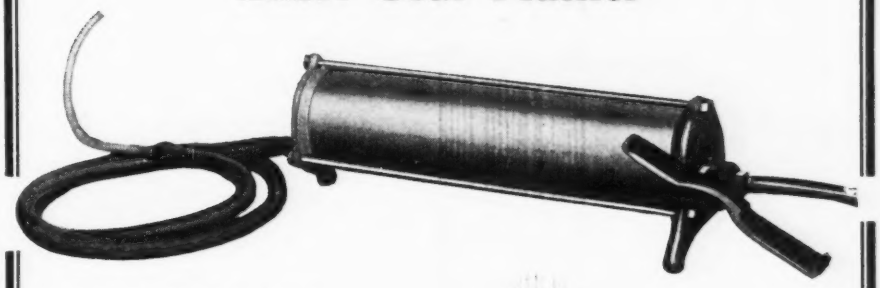

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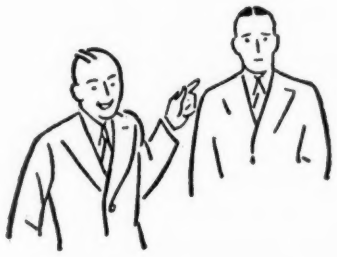

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National Petroleum News

Exporters Buy 7,000,000 Gallons Gasoline in Mid-Continent

Staff Special
TULSA, Oct. 12

RENEWAL of export buying of gasolines brought more optimism to the Mid-Continent during the second week of October. Approximately 7,000,000 gallons of two grades of gasoline were bought in Oklahoma, north Texas and Arkansas.

Domestic demand for gasolines continued to decrease but not at a rate beyond the expectations of refiners. Prices were generally unchanged throughout the week.

Natural gasolines moved lower early in the week but regained ground later and prices at the close of business Oct 12 were about in line with those at the close of the first week of the month.

Kerosenes were comparatively quiet in most quarters. Distillates were more freely offered, several buyers reported. Gas oils were in good demand, with zero cold test goods scarce.

Some grades of fuel oils advanced fractionally while others remained steady. Demand was good most sellers reported.

Neutral oils and bright stocks were generally unchanged. Wax moved closer to a 3 cent level.

Gasolines

Two buyers were active in the export gasoline market. One of them, a Tulsan, represented a group of European buyers who, since the formation of the Export Petroleum Association, have done some buying direct in the Mid-Continent, paying freight and tanker charges as well as handling charges through a rented terminal at the Gulf. The purchases were reported to have totaled 3,000,000 gallons of 60-62, 400 e. p. gasoline. Oklahoma and Arkansas refiners obtained the bulk of this business.

The other buyer was an export company which has been in this field for several years. The bulk of the goods purchased, totaling close to 4,000,000 gallons, was 64-66, 375 e. p. grade. North Texas refiners obtained most of the orders. Prices paid for the gasolines were reported to have been 7.125 to 7.25 cents for the 400 e. p. grade, and 7.50 cents for the 375 e. p. gasoline.

Some of the gasoline was to move within the next few days, while the remainder will be moved at intervals over the next 40 to 60 days. The purchases, especially in north Texas, will keep some of the refiners out of the domestic U. S. Motor market for the time being at least.

There continued to exist a wide range of prices for U. S. Motor gasoline, both in Oklahoma and in other districts where quotations were made on a group 3 basis. The price situation generally, however, was unchanged from the previous week.

Demand showed some signs of dropping off but that was to be expected at this season of the year. The colder weather in the northern part of the Standard of Indiana territory has caused the percentage of high gravity gasolines to increase slightly but not sufficiently as yet to influence prices.

Natural Gasolines

Natural gasolines were in lighter demand the first of the week and prices worked to slightly lower levels. This situation was changed later in the week when some new buying developed and prices moved back to the levels prevailing at the close of the previous week.

One large manufacturer who does considerable resale business was reported to have held back much of his production early in the month and bought on the outside as goods were offered to him. It was believed in some quarters this manufacturer would move his own production the latter half of the month with the expectation of prices advancing. Some of the buying late this week may have been done by companies anticipating higher prices after the middle of the month.

Kerosenes

Reports were heard late in the week that an attempt had been made to buy kerosene for export but that the prospective purchaser's idea of price was considerably under refiners' ideas and no orders had been placed.

Domestic demand for kerosenes was comparatively light in most quarters and prices were slightly lower. One or two refiners reported they had reduced their kerosene production to a minimum and would make more distillates for the time being. Treated 41-43 w.w. grade moved in Oklahoma mostly at 5.125 to 5.25 cents a gallon while untreated goods were available at 5 cents.

Distillates and Gas Oils

Jobbers apparently have in storage about all the distillates they need until a prolonged cold spell makes them reduce stocks. Demand accordingly has been comparatively light the past week, especially on the spot market. Contract shipments were reported to have been good in most quarters.

Distillate prices were generally unchanged. The better grade of goods moved at 4 to 4.25 cents a gallon, while some of the higher cold test and higher flash goods were offered at slightly under the 4 cent mark.

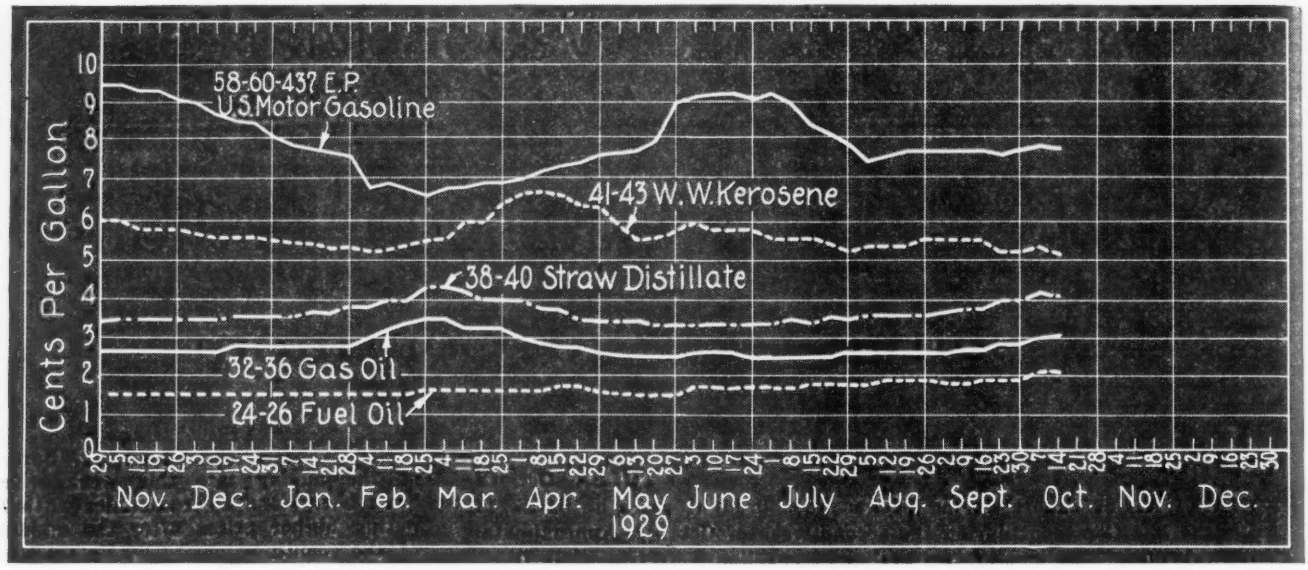
Zero cold test gas oils were in active demand while the grade suitable for cracking purposes was sought by several refiners. High cold test gas oil was freely offered in some quarters but prices generally were steady.

Fuel Oils

Better grades of fuel oils advanced from 2.50 to 5 cents a barrel, especially the higher gravities. This situation caused a wide range in prices, the poorer grades of fuel oils of the same gravity failing to show any improvement.

Fuel oils of 20 gravity or higher were reported to be extremely scarce

Current Prices of Principal Mid-Continent Refined Products



Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

in the open market. This was true especially of the low cold test oils. The grades below 20 gravity were obtainable at generally unchanged prices although supply was reported scarcer.

Buying was exceptionally good around the first of the month, and new buying was reported late in the week for shipment the last half of the month.

Neutral Oils and Bright Stock

Little change was noted in neutral oils and bright stocks. The latter commodity was scarce for both contract and spot shipment. Demand for wax increased sufficiently for prices to advance to 2.875 to 3 cents a pound.

Gulf Coast Lubes Unchanged

HOUSTON, Oct. 14.—Gulf Coastal lubricant prices were unchanged the past week of quiet marketing conditions. Domestic jobbers continue inquiries against winter requirements for zero cold test grades, but in many cases contracts remain to be closed. Increased business is forecast by manufacturers for the next 30 to 60 days.

Dixie Distributors Form Central Control Board

CHICAGO, Oct. 12.—Representatives of the Dixie Distributors, Inc. met at the Congress Hotel, Chicago on Oct. 10 and organized a Dixie control board. This is made up of members from the eight states in which Dixie does business and will take charge of advertising activities.

Paul Kempf, Ann Arbor, Mich. was made chairman and E. B. Rentmeester, Oconomowoc, Wis. is secretary. The board will maintain headquarters at Ann Arbor and meet about four times a year. The Dixie distributors are now doing business in Wisconsin, Michigan, Kansas, Illinois, Ohio, Missouri, Iowa and Nebraska.

OMAHA, Neb., Oct. 12.—E. H. Blakely, who for nine years has represented the Tidal Refining Co. in Nebraska territory, is now associated with Clark Kendrick of the Kendrick Oil Co., Tulsa.

Mr. Blakely is at the Omaha offices.

DECORAH, IA., Oct. 12.—W. E. Scott, president of the Scott Oil Co. here, has purchased the Monte Oil Co. of Decorah.

Mr. Scott was formerly president of the Bartles Scott Oil Co. at Willmar, Minn. He will make his headquarters now at Decorah.

BROOKLYN, N. Y., Oct. 12.—Wilco Oil Corp. announces that Sydney Brielofsky, known to the trade as Sydney Brill, no longer is connected with the company.

CLEVELAND, Oct. 11.—The Universal Pump and Tank Corp., Cleveland, has been formed for the manufacturing of service station dispensing equipment. Fred Charlton is president, and Richard Spaeth is vice president and manager of production. Both men are pioneers in this field and well known to the oil industry.

NEW YORK, Oct. 12.—Tide Water Oil Sales Corp., has bought the Essenar service stations on Long Island, the Service Oil Co. of Asbury Park, N. J., and the Royal Oil Co. of Newark, N. J.

Prices 10 Years Ago
Oct. 13, 1919

	Oklahoma	Penna.
50-60 U. S. Motor	17.00–17.25c	20.00–20.25c
80-84 Natural	21.00–21.25c	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.)	9.75–10.00c	12.75–13.00c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$0.75–$0.80	6.00–6.25c
Crude (Okla. 35-35.9)..	$2.25	$4.25
Chicago tank wagon	.....	21.00c

Prices A Year Ago
Oct. 15, 1928

	Oklahoma	Penna.
58-60 U. S. Motor	9.7446c	11.00–11.75c
Grade A Natural	9.875c	.....
Kerosene (Okla. 41-43; Pa. 47 w. w.)	6.00–6.25c	8.125–8.875c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.65–$0.675	4.50–5.00c
Crude (Okla. 35-35.9)	$1.31	$3.35
Chicago tank wagon.....	.....	15.00c

Chicago Resale Market

Weather Fails to Halt Burning Oils

Staff Special
CHICAGO, Oct. 12

DESPITE the milder weather prevailing in the Chicago territory the past week, burning oils still were the center of interest and generally moved at higher prices.

Demand for good grades of distillate, zero gas and fuel oils was comparatively active, although not as heavy as previously, but the primary reason for higher prices was the scarcity of these grades for immediate shipment.

While all zero oils were scarce, the 28-30 and 18-22 grades were practically unobtainable for spot shipment except in one or two quarters. Carlot marketers generally reported they were not quoting 28-30 zero fuel as they were unable to obtain shipment on goods already purchased. A few sales of this grade were reported, ranging from $1.10 to $1.20. The 18-22 zero, high sulfur fuel was generally quoted at $0.65 to $0.675 by Oct. 12.

Although distillate prices were about 0.125 cent higher this week, a number of sellers reported there was considerably more goods being offered than at any time within the past month. The general price range on the 38-40 light straw was 4 to 4.125 cents with very little offered under the lower figure. Many of the trade said they believed the distillate market had reached its peak, for the present at least, and were expecting a gradual lowering of prices. One west Texas refiner was reported offering a large quantity of 38-40 light straw distillate, sweet odor, low flash, at 4 cents, f.o.b. Group 3 for immediate shipment.

Gas oil prices were fractionally higher but many sellers reported that goods were more freely offered and that demand had slackened considerably.

Gasoline prices were approximately an 0.125 cent lower by Oct. 12, although the general spot market showed little change as far as demand was concerned. Jobbers generally confined their purchases to small lots and were buying only when forced to do so. Most refiners reported their contract business was holding up well.

More spot sales of 58-60 U. S. Motor gasoline were reported under 7 cents on Oct. 12 and the bulk of movement was at 6.875 to 7.75 cents. Several jobbers reported buying Motor as low as 6.625 cents, but these sales were the exception rather than the rule. Carlot marketers said their general buying prices ranged from 6.625 to 6.875 cents in Oklahoma and Texas, and they were selling mostly at 6.875 to 7.25 cents to jobbers.

The smaller refiners generally quoted 7 cents and up for their U. S. Motor. On the other hand, the major refiners continued to quote 7.75 cents and reported doing some business at this figure. The bulk of their business, however, was on contracts or through their own service stations.

A number of sellers reported doing more business on the higher gravity gasolines this week, but in general, movement of these grades was quiet. Prices of most grades were off about 0.125 cent over the week.

The kerosene market apparently was in better shape towards the close of the week, although spot prices were not much changed. This was brought about more by the export buying of late last week than by any heavier demand from domestic jobbers. The general range of prices for 41-43 w.w. kerosene was 4.875 to 5.25 cents. Fewer sales reported under 5 cents towards the close of the week.

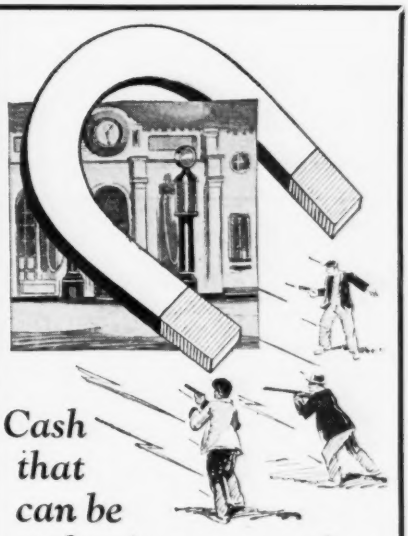
Temperatures will hover close to normal over the Standard of Indiana territory during the coming week, with some precipitation likely during the closing days, according to the weather bureau.

Four New Tankers Ordered

NEW YORK, Oct. 12.—Standard Transportation Co., subsidiary of the Standard Oil Co. of New York, has ordered two 18,000-ton deadweight tankers from the Federal Shipbuilding Co., and the Sinclair Navigation Co., subsidiary of the Sinclair Consolidated Oil Corp., two 8400-ton deadweight tankers from the Bethlehem Shipbuilding Co.

CHARLOTTE, N. C., Oct. 14.—The McDonald Service Station will build stations in Greensboro and High Point, N. C., along the lines of super stations. Firestone Rubber Co. products, as well as gasoline and oils, will be handled.

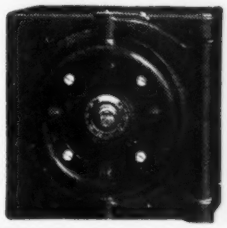
REEDVILLE, VA., Oct. 14. — E. W. Edwards is president of the newly organized Del-Mar-Va Oil Co., Inc., here. The company will market petroleum products and accessories. It is capitalized at $102,000.



Cash that can be stolen is a magnet!

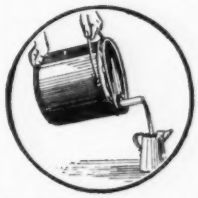
It draws the burglar and hold-up man just as irresistibly as the loadstone draws steel filings. The York Burglary Chest—the result of nearly half a century in expert safe construction—will bring to your service station the protection needed.

YORK SAFES



YORK SAFE *and* LOCK COMPANY
York, Pa.

do you know about
...*POR-PAIL*
(get a sample)



This is the much talked about unit pouring can, the BENETCO *Por-Pail* that has been so widely adopted as a container for lubricants. Get your sample now and inspect those features of smooth, accurate pouring...no fuss or muss... super-convenience and permanent utility.

WILSON & BENNETT MFG. COMPANY
6520 South Menard Ave. CHICAGO
39 Cortlandt St. NEW YORK

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F.O.B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect October 14

	Price F.O.B. Group 3	*Price F.O.B. Point of Origin*	*If for Particular Destination*
Oklahoma	7.6721 (Wt. Avg.)	7.6721 (Wt. Avg.)	
Kansas	7.00-7.375		S. O. Neb. & Ind. Ter., etc.
Kansas		7.7500 (Wt. Avg.)	Kansas only.
North Texas	6.75-7.00	6.75-7.00	
West Texas	7.00	6.875-7.00	
Louisiana-Ark.	7.00-7.25		Mich., Ohio & Indiana.
Louisiana-Ark.		7.375-7.50	State or differential haul.
Indiana-Illinois	7.00-7.75	*	S. O. Ind. territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Weighted Average Prices

OKLAHOMA

	Oct. 14		Oct. 7		Sept. 30	
	No. of cars	Price	No. of cars	Price	No. of cars	Price
58-60 U. S. Motor, 437 e. p.	69	7.6721	69	7.6830	104	7.7067
60-62 437 e. p. gasoline	No sales	reported	3	8.0000	4	7.6250
60-62 400 e. p. gasoline	3	8.0000	4	8.0313	8	7.7500
64-66 375 e. p. gasoline	5	8.4500	2	8.3125	3	8.4583

Little change was noted in the wide range of prices quoted in Oklahoma the past week, and the weighted averages shown above were for the most part unchanged. The bulk of the low priced goods went to marketers on a resale basis and did not appear in the weighted average compilations.

First of the month buying by many jobbers caused the volume of spot business to be somewhat larger the past week than was the case the last week in September.

KANSAS

	Oct. 14		Oct. 7		Sept. 30	
	No. of cars	Price	No. of cars	Price	No. of cars	Price
58-60 U. S. Motor, 437 e. p.	1	7.7500	2	7.6875	2	7.7500

Virtually no changes were noted the past week in Kansas prices for shipment within the state, although slight reductions were made in quotations on a group 3 basis.

GASOLINE AND NAPHTHA

OKLAHOMA	Prices Oct. 14	Prices Oct. 7	Prices Sept. 30
48-50 450 e.p. naphtha...	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
50-52 450 e.p. naphtha...	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
56-58 450 e.p. gasoline...	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
58-60 450 e.p. gasoline...	6.75 – 7.375	6.875– 7.375	6.875– 7.375
64-66 390 e.p. gasoline...	7.75 – 8.125	7.75 – 8.125	7.875– 8.125
68 70 350-360 e.p. gasoline	8.00 – 8.375	8.00 – 8.50	8.00 – 8.50

†Prices nominal ††Only one refiner quoting *Quotations only

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

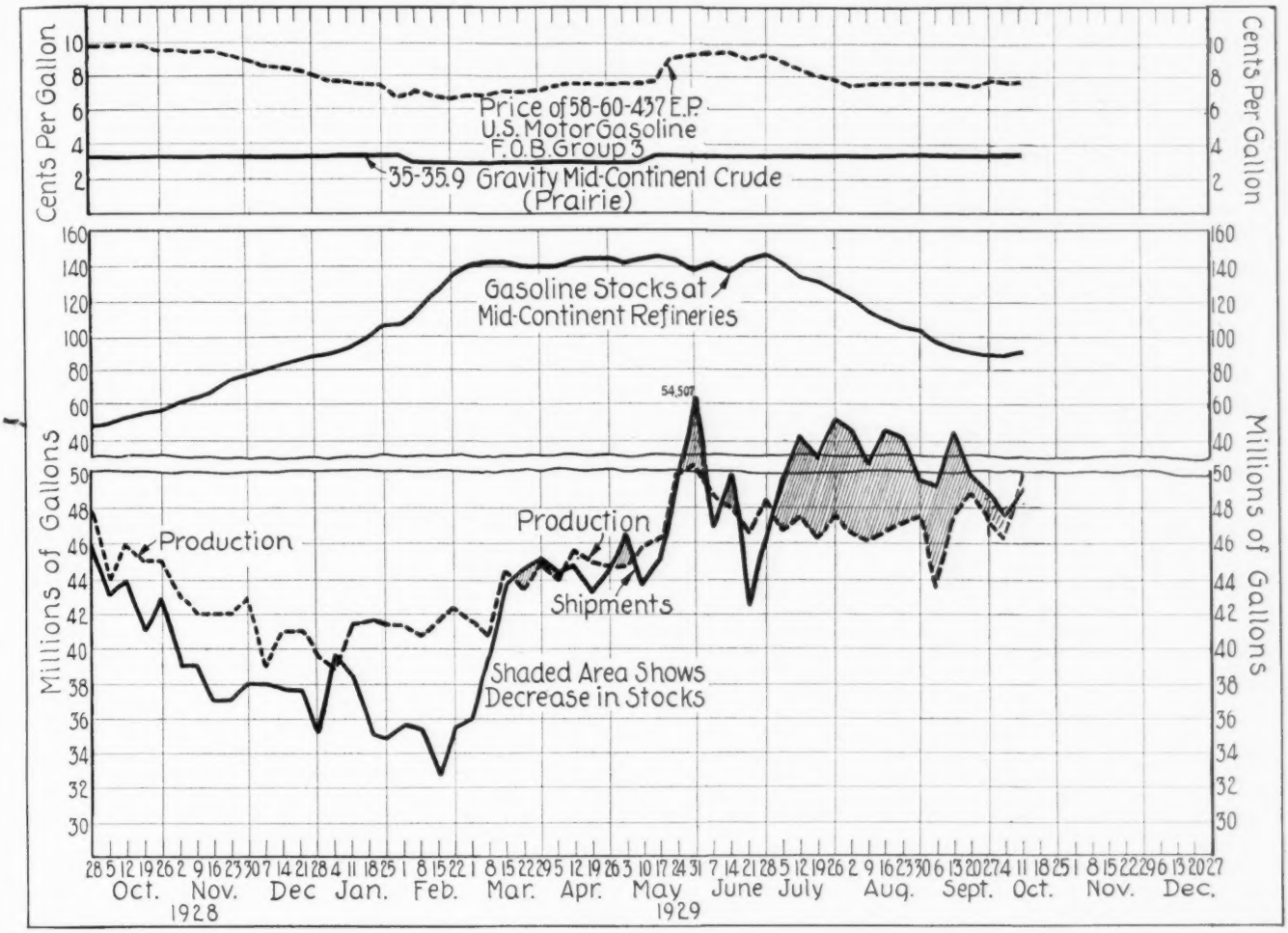
	Prices Oct. 14	Prices Oct. 7	Prices Sept. 30
58-60 U.S. Motor, 437 e.p.	6.875– 7.75	7.00 – 7.75	7.00 – 7.75
60-62 437 e.p. gasoline...	7.125– 7.75	7.125– 7.875	7.125– 7.875
60-62 400 e.p. gasoline...	7.375– 7.875	7.50 – 7.875	7.50 – 8.00
64-66 375 e.p. gasoline...	7.75 – 8.00	7.75 – 8.125	7.875– 8.125

(*Continued on Page 106*)

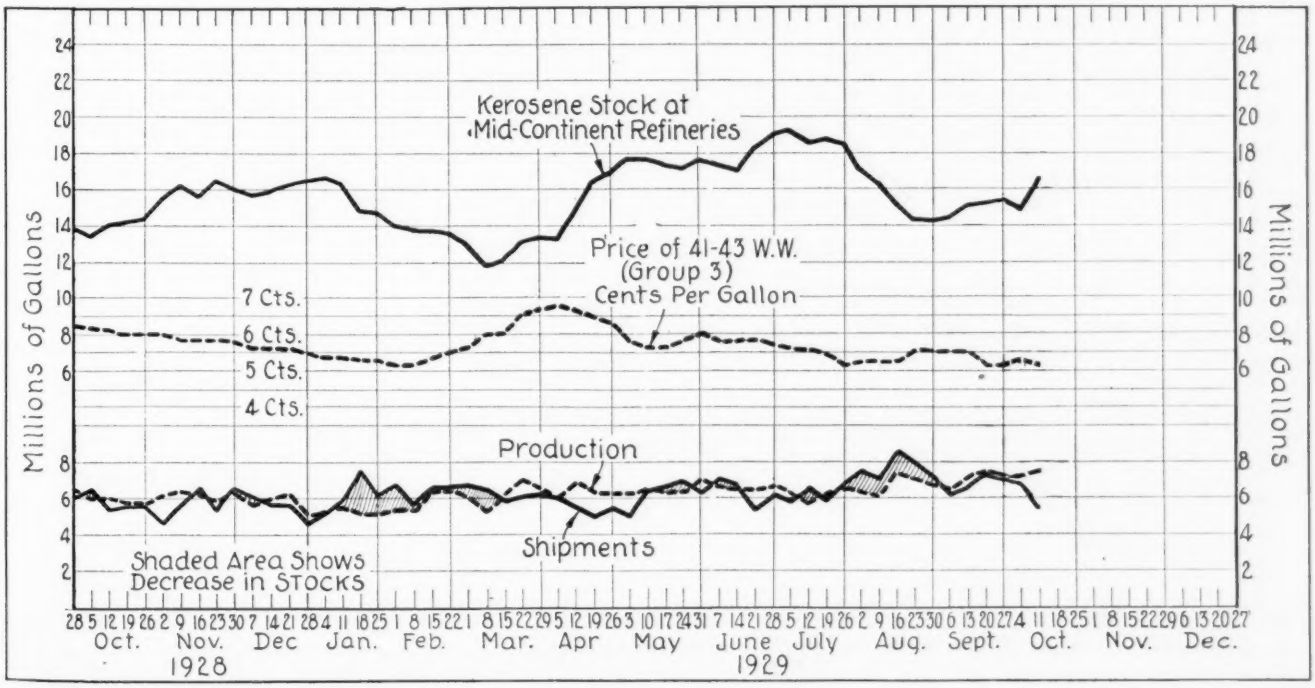
**Represents Both Sales and Quotations.

Barometer of Mid-Continent Refinery Market—Week Ending October 11

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



***Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as** shown in the table on page 98*



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

PENNSYLVANIA

	Prices Oct. 14	Prices Oct. 7	Prices Sept. 30
52-54 Naphtha	7.75 – 8.25	8.00 – 8.25	8.00 – 8.25
54-56 Naphtha	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
58-60 U.S. Motor 437 e.p.	8.50 – 9.00	8.50 – 9.25	8.50 – 9.25
60-62 400-410 e.p. gasoline	9.00 – 9.50	8.75 – 9.50	8.75 – 9.50
64-66 390 e.p. gasoline	9.50 –10.00	9.25 – 9.75	9.25 – 9.75
68-70 Str-run gas 350-360 e.p.	10.00 –10.75	10.25 –10.75	10.25 –10.75

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline			
Ohio, delivery at any point	10.50	10.50	10.50

KANSAS (F. O. B. refinery Kansas destination)

60-62 400 e.p. gasoline	8.00 – 8.125	8.00 – 8.125	8.00 – 8.125
64-66 375 e.p. gasoline	8.25 – 8.375	8.25 – 8.375	8.25 – 8.375

NORTH TEXAS

56-58 450 e.p. gasoline	6.50 – 6.625	6.50 – 6.625	6.625– 6.75
58-60 450 e.p. gasoline	6.625	6.625– 6.75	6.75
58-60 U.S. Motor 437 e.p.	6.75 – 7.00	6.75 – 7.00	6.875– 7.00
60-62 400 e.p. gasoline	7.00 – 7.25	7.00 – 7.25	7.125– 7.25
64-66 390 e.p. gasoline	7.25 – 7.50	7.375– 7.50	7.375– 7.50
64-66 375 e.p. gasoline	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
68-70 350-360 e.p. gasoline	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25

****WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)**

50-52 naphtha	6.125– 6.25	6.125– 6.25	6.25
‡58-60 437 e.p. gasoline	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
58-60 U. S. Motor 437 e.p. gasoline	6.875– 7.00	6.875– 7.00	6.625– 7.00

‡Gravity changed from 56-58 to 58-60 Oct. 7.

NORTH LOUISIANA (N. La., Ark., and Miss. destination)

58-60 390 e.p. gasoline	7.375– 7.50	7.375	7.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	7.375– 7.50	7.375	7.50

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	7.25 –10.25	7.25 –10.25	7.25 –10.50
58-61 375-400 e.p. gasoline	10.75 –11.25	10.75 –11.25	11.00 –11.50
42-45 Engine Distillate 445-480 e.p.	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA

Grade AA, 80-87.9, 90% Recovery	6.50	6.50	6.625
Grade A, 72-79.9, 90% Recovery	6.50	6.50 – 6.625	6.625
Grade BB, 84-92, 85% Recovery	6.25 – 6.375	6.25	*6.50
Grade B, 76-83.9, 85% Recovery	6.25 – 6.375	6.25	*6.50
Grade C, 80-92, 78% Recovery	6.25 – 6.375	6.25	*6.50

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery	6.50	6.50	6.625
Grade A, 72-79.9, 90% Recovery	6.50	6.50 – 6.625	6.625
Grade BB, 84-92, 85% Recovery	6.25 – 6.375	6.25	*6.50
Grade B, 76-83.9, 85% Recovery	6.25 – 6.375	6.25	*6.50
Grade C, 80-92, 78% Recovery	6.25 – 6.375	6.25	*6.50

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA	†6.625	†6.75	†7.00
Grade BB	6.625	†6.50	†6.75
Grade C	6.625	†6.50	†6.75

CALIFORNIA

75-85, 375-390 e.p. blend	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00

BURNING OILS

PENNSYLVANIA

	Prices Oct. 14	Prices Oct. 7	Prices Sept. 30
45 w.w. kerosene	6.625– 6.875	6.50 – 6.75	6.375– 6.50
46 w.w. kerosene	6.75 – 7.125	6.75 – 7.00	6.75 – 7.00
47 w.w. kerosene	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 mineral seal	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

41-43 w.w. kerosene	4.875– 5.25	5.00 – 5.25	5.00 – 5.375

OKLAHOMA

41-43 w.w. kerosene	5.00 – 5.25	5.00 – 5.50	5.00 – 5.50
42-44 w.w. kerosene	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75

KANSAS (F. O. B. refinery Kansas destination)

41-43 w.w. kerosene	5.50 – 6.00	5.50 – 6.00	5.75
42-44 w.w. kerosene	6.00 – 6.125	6.00 – 6.25	6.00

NORTH TEXAS

40-42 w.w. kerosene	4.375	4.375– 4.625	4.50 – 4.75
41-43 w.w. kerosene	4.50 – 4.625	4.625– 4.75	4.75

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene	5.25 – 5.50	5.25 – 5.50	5.375– 5.50
42-44 w.w. kerosene	5.50 – 5.625	5.50 – 5.625	5.625

ARKANSAS (Ark., N. La. and Miss. destination)

42-44 kerosene	5.50 – 5.625	5.50 – 5.625	5.625

CALIFORNIA

38-40 w.w. kerosene	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00

NEUTRAL OIL

PENNSYLVANIA

Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt.	24.00 –27.00	24.00 –27.00	24.50 –27.00
180 No. 3 Assoc. Filt.	18.50 –21.50	19.00 –21.50	19.50 –21.50
150 No. 3 Assoc. Filt.	15.00 –18.00	15.50 –18.00	16.00 –18.00
		(Non Viscous)	
34 Grav. 330-340 Flash	7.375– 7.75	7.375– 7.75	7.25 – 7.50

****OKLAHOMA**

Vis.	Color	(Viscosity at 100°F.)		
100	No. 2	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
150	No. 3	7.50 – 8.25	7.50 – 8.25	7.50 – 8.25
150	No. 4	6.75 – 7.50	6.75 – 7.50	6.75 – 7.50
180	No. 3	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
180	No. 4	8.75 – 9.25	8.75 – 9.25	8.75 – 9.25
180	No. 5	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
200	No. 3	9.50 –11.00	9.50 –11.00	9.50 –11.00
200	No. 4	9.00 –10.00	9.00 –10.00	9.00 –10.00
200	No. 5	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.00 –12.50	12.00 –12.50	12.00 –12.50
220	No. 5	11.00 –12.00	11.00 –12.00	11.00 –12.00
240	No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
240	No. 4	12.00 –13.00	12.00 –13.00	12.00 –13.00
240	No. 5	11.00 –13.00	11.00 –13.00	11.00 –13.00
280	No. 3	14.00 –16.00	14.00 –16.00	14.00 –16.00
280	No. 4	13.00 –15.00	13.00 –15.00	13.00 –15.00
280	No. 5	12.00 –14.00	12.00 –14.00	12.00 –14.00

†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations.

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL

Vis.	Color	Prices Oct. 14	Prices Oct. 7	Prices Sept. 30
		(Viscosity at 100°F., pour test 0)		
100	No. 2 Pale	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
200	No. 3 Pale	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
300	No. 3 Pale	10.00 –10.50	10.00 –10.50	10.00 –10.50
500	No. 3½ Pale	11.50 –12.00	11.50 –12.00	11.50 –12.00
750	No. 4 Pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
200	No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300	No. 5½ Red Oil	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
500	No. 6 Red Oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750	No. 6 Red Oil	11.50 –12.00	11.50 –12.00	11.50 –12.00

CALIFORNIA

Vis.	Color			
		(Viscosity at 100°F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

CYLINDER STOCKS

**OKLAHOMA

190-200 Vis. D at 210° Brt. St.	40.00 –42.00	40.00 –42.00	40.00 –42.00
150-160 Vis. D at 210° Brt. St.	37.00 –38.00	37.00 –38.00	37.00 –38.00
150-160 Vis. E 210° Brt. St.	34.00 –35.00	33.00 –35.00	33.00 –35.00
600 St. Ref. Olive Green	10.00 –14.00	10.00 –14.00	10.00 –14.00
600 St. Ref. Dark Green	10.00 –13.00	10.00 –13.00	10.00 –13.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (A. S. T. M. Tests)

600 Steam Refined, filterable	27.00 –29.00	27.00 –29.00	26.00 –27.00
650 Steam Refined	29.00 –32.00	30.00 –32.00	28.50 –30.00
600 Flash	31.00 –33.00	30.00 –33.00	30.00 –33.00
625 Flash	35.00 –37.00	35.00 –37.00	35.00 –37.00
600 Warren E	32.50	32.50	32.50
600 Oil City E	31.00 –32.00	31.00 –32.00	31.00 –31.50
600 D Filtered	36.50 –37.00	36.50 –37.00	36.50 –37.00
Cold Test Stock, 40-50p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	52.00 –53.00	53.00 –53.50	†52.50 –53.50
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	50.00 –51.00	††50.00	†50.00 –51.00

WAX

PENNSYLVANIA (Per pound, New York)

122-124 white crude scale, a.m.p.	3.25 – 3.375	3.125– 3.25	2.875– 3.125
124-126 white crude scale, a.m.p.	3.25 – 3.375	3.25	3.00 – 3.25

OKLAHOMA

**124-126 White Crude Scale, a. m. p.	2.875– 3.00	2.75 – 3.00	2.75 – 3.00

CALIFORNIA

White crude scale, per pound, ton lots, a.m.p.	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	4.625– 5.00	4.50 – 4.75	4.50 – 4.75
30-34 fuel oil	4.375	4.25 – 4.375	4.125– 4.25
28-32 fuel oil	4.375	4.25 – 4.375	4.125– 4.25

†Prices Nominal ††Only One Refiner Quoting *Quotations only

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

	Prices Oct. 14	Prices Oct. 7	Prices Sept. 30
38-40 straw distillate	4.00 – 4.125	4.00	4.00
32-36 ordinary dark gas oil	2.75 – 3.00	2.75 – 2.875	2.75 – 2.875
32-36 dark zero gas oil	3.00 – 3.25	3.00 – 3.125	2.875– 3.00
32-36 straw zero gas oil	†3.25 – 3.375	†3.125– 3.25	†3.125– 3.25
28-30 zero fuel oil	†$1.10 –$1.20	†$1.075–$1.10	$1.05 –$1.10
28-30 fuel oil	$1.025–$1.075	$1.00 –$1.05	$1.00 –$1.025
24-26 fuel oil	$0.80 –$0.825	$0.80 –$0.825	$0.80 –$0.825
18-22 fuel oil, low sulfur	$0.625–$0.675	$0.625–$0.65	$0.625–$0.65
18-22 fuel oil, high sulfur	$0.65 –$0.675	$0.625–$0.675	$0.625–$0.65

OKLAHOMA

38-40 straw distillate	4.00 – 4.25	4.00 – 4.25	4.00
36-38 straw distillate	3.875– 4.00	3.75 – 4.00	3.75 – 3.875
32-36 straw gas oil	3.00 – 3.125	3.00	2.875– 3.00
32-36 dark gas oil	3.00	2.875– 3.00	2.875– 3.00
32-36 straw zero gas oil	3.25	3.125– 3.25	3.00 – 3.25
32-36 dark zero gas oil	3.125– 3.25	3.00 – 3.125	3.00 – 3.125
28-30 zero fuel oil	$1.10 – 1.15	$1.075– 1.15	$1.05 – 1.10
28-30 fuel oil (in bbls.)	1.05 – 1.10	$1.05	$1.025– 1.05
26-28 fuel oil (in bbls.)	$0.875– 0.90	$0.875– 0.90	$0.85 – 0.90
24-26 fuel oil (in bbls.)	$0.825– 0.90	$0.825– 0.90	$0.80 – 0.875
22-26 fuel oil (in bbls.)	$0.70 – 0.825	$0.70 – 0.80	$0.65 – 0.70
18-22 fuel oil (in bbls.)	$0.65 – 0.70	$0.65 – 0.70	$0.65
‡16-20 fuel oil (in bbls.)	$0.575– 0.60	$0.575– 0.60	$0.55 – 0.60
14-16 fuel oil (in bbls.)	$0.55 – 0.60	$0.55 – 0.60	$0.525– 0.60

‡Gravity changed from 16-18 to 16-20, Aug. 19.

KANSAS (F. O. B. refinery Kansas destination)

38-40 straw distillate	4.25	4.25	4.00 – 4.125
36-38 straw distillate	4.00 – 4.25	4.00 – 4.25	4.00
32-36 gas oil	3.25	3.25	3.00 – 3.25
18-22 fuel oil	$0.70 – 0.75	$0.70 – 0.75	$0.675– 0.70
10-14 fuel oil	$0.65 – 0.70	$0.65 – 0.675	$0.625– 0.65

NORTH TEXAS

38-40 straw distillate	3.875– 4.00	3.875– 4.00	3.875– 4.00
32-36 gas oil, cracked	2.625	2.625	2.625
32-36 St. reduced gas oil	2.75	2.75	2.75
24-26 fuel oil (in bbls.)	$0.65 – 0.70	$0.65 – 0.675	$0.65 – 0.70
20-24 fuel oil	$0.625– 0.65	$0.625– 0.65	$0.625– 0.675
18-22 fuel oil	$0.60	$0.575– 0.60	$0.575– 0.60

**WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)

34-38 gas oil	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
28-30 zero gas oil	3.25	3.25	2.75 – 3.25
18-22 fuel oil	$0.55 – 0.65	$0.55 – 0.65	$0.55 – 0.60

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	3.50	3.50	3.50
32-36 gas oil, straw	3.50	3.50	3.50
14-16 fuel oil (in bbls.)	$0.75 – 0.80	$0.70 – 0.80	$0.70 – 0.80

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	3.50	3.50	3.50
32-36 dark gas oil	3.50	3.50	3.50
28-30 gas oil	3.125– 3.25	3.00 – 3.25	3.00 – 3.25
14-16 fuel oil	$0.75 – 0.80	$0.70 – 0.80	$0.70 – 0.80

CALIFORNIA (F. o. b. San Joaquin Valley. At San Francisco, 4c per bbl. more)

14-18 fuel oil (per bbl.)	$0.45 –$0.60	$0.45 –$0.60	$0.45 –$0.60
14-18 Bunker oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
30-34 gas oil (per bbl.)	$0.80 –$0.90	$0.80 –$0.90	$0.85 –$0.90
27 Plus Diesel oil (per bbl.)	$0.80 –$0.90	$0.80 –$0.90	$0.85 –$0.90

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f. o. b. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

Snow White	8.50 – 8.75	8.50 – 8.75	8.50 – 8.75
Lily White	7.75	7.75	7.75
Cream White	6.75	6.75	6.75
Light Amber	3.75	3.75	3.75
Amber	3.50	3.50	3.50
Red	3.25	3.25	3.25

PETROLEUM COKE

**OKLAHOMA

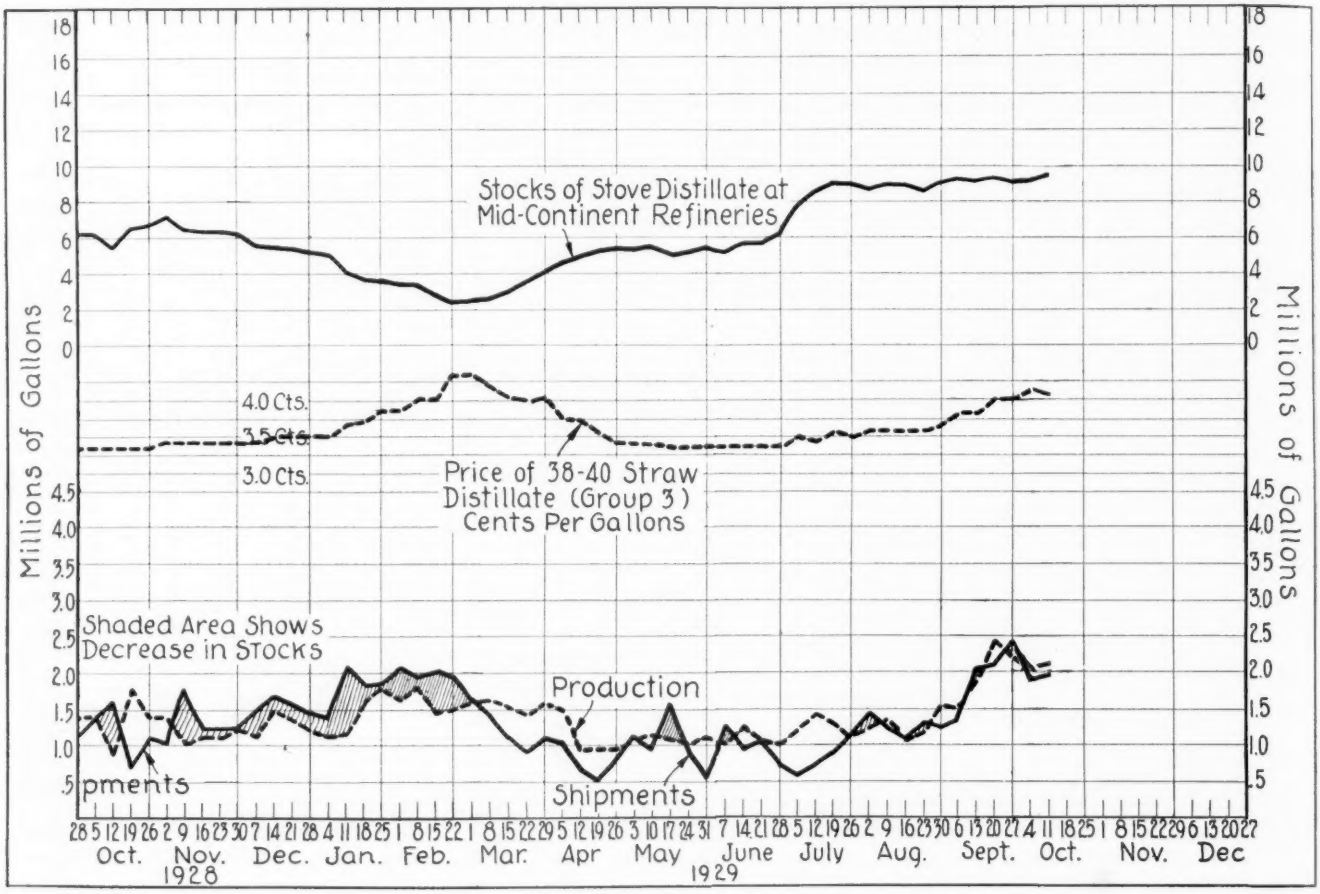
(Per ton in car lots)

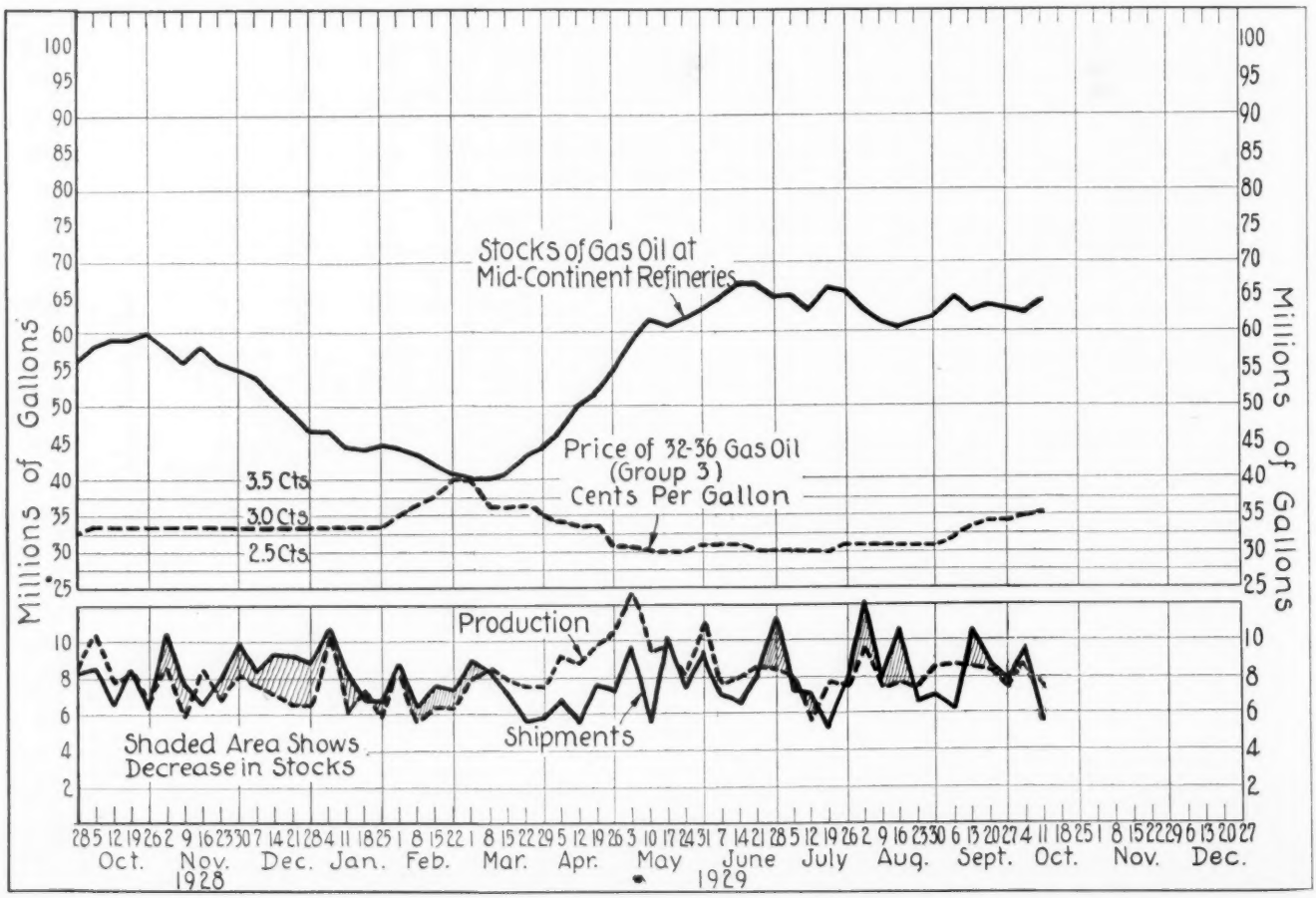
Lump	$4.50 – 5.00	$4.50 – 5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

**Represents both sales and quotations

Barometer of Mid-Continent Refinery Market—Week Ending October 11

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Millions of Gallons
Stocks of Stove Distillate at Mid-Continent Refineries
4.0 Cts.
3.5 Cts.
3.0 Cts.
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallons
Shaded Area Shows Decrease in Stocks
Production
Shipments
Oct. Nov. Dec. Jan. Feb. Mar. Apr May June July Aug. Sept. Oct. Nov. Dec
1928
1929


Millions of Gallons
Millions of Gallons
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1928
1929

What's the matter now? Same Trouble?

"SURE, I know you like to 'hit it up'. But if you do go fast, get an oil that'll keep up with you—The New TAGOLENE. You've been going at too fast a clip for an ordinary oil."

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Skelly Oil Company made The New TAGOLENE to meet such a demand—and more. It stands up under the severest tests—gives an extra margin of protection for any motor's safety.

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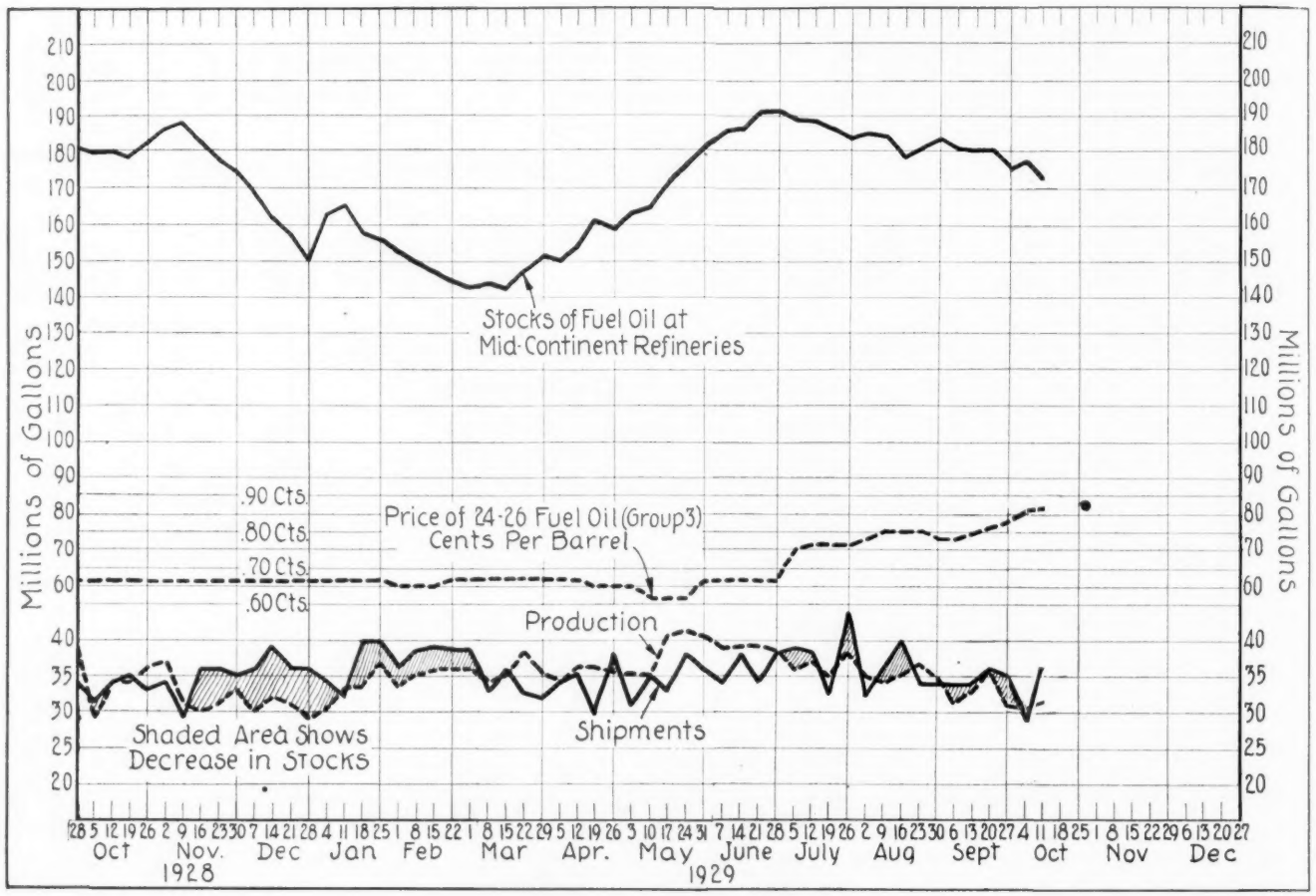
Barometer of Mid-Continent Refinery Market—Week Ending October 11

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Millions of Gallons
Stocks of Fuel Oil at Mid-Continent Refineries
.90 Cts.
.80 Cts.
.70 Cts.
.60 Cts.
Price of 24-26 Fuel Oil (Group 3) Cents Per Barrel
Production
Shipments
Shaded Area Shows Decrease in Stocks
Oct Nov. Dec Jan Feb Mar Apr. May June July Aug Sept Oct Nov Dec
1928
1929

California Refinery Market

Inquiries Fail to Stimulate Business

LOS ANGELES, Oct. 10

ALTHOUGH shippers of petroleum products state that a number of inquiries were received last week, no actual sales were made. The California export market apparently was in the hands of buyers.

Both shippers and buyers are watching the conservation movement closely. They recognize that the export market is likely to be greatly influenced by the success or failure of the conservation campaign in California and other American oil producing states.

Shippers feel that if oil stocks continue to increase, a reduction in crude prices is inevitable. From their viewpoint, this reduction should not mean a fall in the export price of refined products, as these products are already sold at too close a margin. However, they recognize that until overproduction of crude is halted, world prices will continue low.

Because of the seasonal decrease in demand, and of the increase in stocks, buyers are holding back in anticipation of a general reduction in the prices of all petroleum commodities.

California tank car markets also reflected the general uneasiness caused by doubt as to the success of the conservation program. The market remained quiet, although quotations from U. S. Motor for shipment within the state advanced a 0.25-cent over last week's figure.

Casinghead gasoline moved up in sympathy with the straight product. Fuel oil was quoted at from $0.45 to $0.55 per barrel; inquiries were few. Prices of other petroleum products remain unchanged from last week.

Columbian Tank Suit Ended

KANSAS CITY, Oct. 14.—A damage suit brought seven years ago by the International Derrick & Equipment Co., Columbus, O., against the Columbian Steel Tank Co. for alleged breach of contract concerning the marketing of the latter's bolted tanks in California was ended Oct. 9, when a jury of the federal court in Kansas City decided in favor of the Columbian company.

The International company charged it had been given the exclusive rights to sell Columbian oil field bolted tanks in the California oil fields and that the Columbian Steel Tank Company did not abide by its contract.

Columbian officials denied having entered into such a contract.

CLEVELAND, Oct. 14.—The Northwest Petroleum Association will hold a one day fall convention at Minneapolis on Oct. 24 according to an announcement by Paul E. Hadlick, secretary. The meeting will be in the gold room of the Radisson hotel.

NEW YORK, Oct. 10.—Frank Henderson, manager of the Cleveland office of Combustion Engineering Corp., died suddenly Sept. 25 at the age of 53 years.

Pennsylvania Market

Kerosene and Fuel Oil Advance

CLEVELAND, Oct. 14.—Kerosene and fuel oil continued to advance in the western Pennsylvania market last week. High gravity gasolines also brought better prices. Lubricating oils, generally speaking, eased off slightly; this was particularly true of bright stock. Wax prices advanced 0.125 to 0.25-cent.

An excellent demand all week for 45 water white kerosene both from jobbers and large eastern distributors caused prices for this commodity to move up as much as 0.375 cent in some districts. The minimum quoted for this grade Saturday stood at 6.625 cents against 6.375 cents for the previous week. Several large refiners late in the week reported they were having no difficulty in getting 6.875 cents for the small volume of goods they had to offer. Other grades of kerosene moved proportionately higher but they were less freely offered.

Fuel oils experienced an advance similar to kerosenes, prices moving up as much as 0.50 cent in some instances. Whereas light color 36-40 oil was rather freely offered at 4.50 cents a week ago, 4.625 cents was the minimum quotation Oct. 12. One large refiner who had quoted the former figure for some time past said he had sold the balance of his October output at 4.875 to 5 cents. He also reported he had had to turn down several additional large orders due to his inability to supply the goods.

Colder weather brought about a brisk demand for high gravity gasolines. Demand for the 64-66, 390 end point grade was particularly good. Several sellers quoted a minimum of 9.50 cents for this grade against a low of 9.25 cents a week ago. The 68-70, 350-360 end point grade was offered rather sparingly at 10.25 to 10.75 cents.

The situation with regard to bright stock was far from what might be described as "easy." There was, however, more oil offered for prompt shipment than there has been for two to three months past. Prices for No. 8 color oil reacted downward about 0.5 cent marking the first recession in prices since Aug. 1. The trade, however, is prepared for some falling off in demand and manufacturers reported they were planning to reduce their November production schedules accordingly.

Demand for cylinder oils slowed up materially but 27 cents remained the low quoted for good filterable 600 steam refined. Prices for filtered stocks also were generally unchanged.

Neutral oils showed further slight price recessions but demand was fairly steady.

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Write for price and samples of shades preferred.

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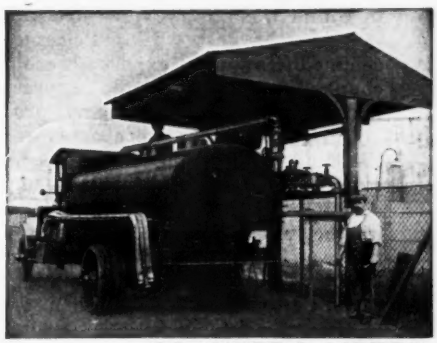

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Eastern Domestic Markets

Tank Car Prices Steady After T. W. Cut

Staff Special
NEW YORK, Oct. 12

A DECLINE in tank wagon and service station gasoline prices in the Standard Oil Co. of New Jersey territory, and a strike of oil truck drivers in New York City, were the high lights of Eastern markets the past week. Tank car prices were unchanged at all points with but one exception.

The 1 cent reduction in gasoline prices made by the Standard Oct. 10, and followed by the Atlantic Refining Co., probably was the factor of greatest interest.

Standard's reduction was general through New Jersey with the exception of Atlantic City at which point prices have been below normal for some time past. It also was effective at other points on the coast where the company has refineries or terminals.

Atlantic's reduction applied to the same point in New Jersey, but it could not be learned Saturday if it would apply at other points where the two companies compete. Reports from Philadelphia were that Atlantic probably would reduce its prices at Wilmington, Baltimore and Richmond—three points where both companies operate and where the Standard has already reduced prices. Actual confirmation of that however, could not be obtained.

It was reported that Standard lowered the price at those points to discourage price cutting. In most of them jobbers have had a margin sufficiently wide that prices easily could be cut and still make a profit.

The dealer discount plan recently adopted by the Standard has not met with favor in all districts where it is effective. Two companies in Baltimore have reported receiving word from one district that discriminations were being made against the farmer. However, in cases where the farmer or any other gasoline user classes as a commercial consumer, a discount is allowed the same as to dealers.

Prices for regular U. S. Motor at New York were unchanged from the week before at 8.75 to 9 cents. Only in one or two directions was the lower price being shaded. California gasoline at New York was lowered to 9 cents when sellers started meeting competition on the regular grade.

Prices were unchanged at other seaboard points. There still were reports of shading 9 cents in the Philadelphia district on goods moving in competition to Bayonne. The volume was not sufficient to be a representative factor in the market, however.

New England prices continued at the new levels established a week ago when they were advanced from 0.25 to 0.75 cent. Suppliers reported that orders were not numerous but there was no shading of prices. One company at Boston bought a barge load of gasoline from a leading refiner and paid the posted price of 10.50 cents, delivered.

Heavy oils were in better demand the past week due to proximity of the consuming season. One or two sellers advanced gas oil prices to 5 cents but the majority of sellers remained at 4.75 cents.

Bunker oil prices were unchanged at $1.05. The demand for bunker oil is comparatively steady the year around and no variation in quotations is expected by the trade. Very little goods moves in the open market, most of it being under contract with steamship companies.

Gulf Coast Markets

Chinese Buyer Seeks Cargo of Kerosene

Staff Special
NEW YORK, Oct. 12

AN INQUIRY for approximately 45,000 barrels of 41-43 prime white kerosene for prompt shipment to China was the only feature of Gulf markets the past week. Prices of all commodities for export were unchanged. There was no appreciable increase in demand for any product.

Various opinions were expressed by the trade concerning the kerosene inquiry which a California company circulated through the market early in the week. Several exporters felt it was simply a market "feeler" and the buyer was merely obtaining information as to the condition of the Gulf kerosene market.

The inquiry specified a special grade of kerosene and it was generally believed that if the transaction were closed, the price would be much higher than the Export Association's posting for regular 41-43 prime white.

An export sale of gasoline to move from the Mid-Continent made last week caused considerable comment from the New York export trade inasmuch as it involved goods which would be laid down at the Gulf under prices posted by the Export Association.

Several market observers, however, estimated that the total volume of "low priced business" would represent only about 5 to 15 per cent of the total volume of export business done at the Gulf. Most of it, the trade believed, moved to Independent concerns on the other side. The remaining 85 to 95 per cent moves on contracts to subsidiaries of United States refiners.

Comparing the present market with the market prevailing a few months ago when it was virtually impossible for an Independent to purchase in the Mid-Continent at prices as low as the Association then posted, the trade assumes that members of the Association are endeavoring to maintain prices which will represent fair averages over a period of time.

The French buyer who was in the market for a cargo of gasoline and kerosene three weeks ago and who postponed purchasing, has not as yet re-entered the market.

Prices for all products for domestic shipment from the Gulf were unchanged. The general opinion of the U. S. Motor market was 7.50 cents although several sellers were quoting higher. One buyer said with a firm offer he believed he could shade that figure.

Kerosene buyers were watching Mid-Continent markets closely where slight reductions were made Saturday. It has been largely those prices which have controlled Gulf quotations for some time. Several suppliers looked for a slight decline at the Gulf.

RICHMOND, VA., Oct. 12.—The Campbell Avenue Filling Station, at Roanoke, Va., which was nearly demolished a short time ago by an explosion thought to have been caused by gas fumes, is now completely rebuilt and reopened for business Oct. 5. Beverly Rakes is owner and manager of the station.

Wax Markets

Small Lot Buying Boosts Prices

NEW YORK, Oct. 12.—Increased demand from both foreign and domestic small lot buyers caused prices of scale waxes to advance further during the past week. It was also reported several brokers had made purchases to cover short sales. Prices of fully refined waxes were unchanged over those of a week ago. There was little interest shown in this section of the market.

Prices for white crude scale advanced approximately 0.25 cent over the week, quotations for both the 122-124 and 124-126 A.m.p. grades standing at 3.375 to 3.50 cents at the close of business Saturday.

Reports from several sources indicated that brokers had purchased from 300 to 400 tons of white crude scale to cover short sales. This business was reported done at 3.50 cents. Several of the trade were of the opinion that 3.50 cents was the bottom of the market Saturday but others were quoting 3.375 cents on small lots for prompt shipment.

One seller reported the sale of 155 tons of white crude scale to a United Kingdom buyer at 3.375 cents c.i.f. which figures about 3.35 cents New York. He also said he had purchased out of the Gulf over the remaining two months of this year at 3.375 cents.

Fifty tons of white crude scale were sold around the middle of the week at 3.30 cents f.a.s. New York, and a day later another 50 tons moved for domestic shipment at 3.375 cents. Late Friday, Oct. 11, a seller reported 40 tons had been sold for domestic shipment over November and December at 3.50 cents.

Early in the week 100 tons of yellow crude scale were sold to a United Kingdom buyer at 3.10 cents, f.a.s. New York. This sale was for prompt shipment.

There were various opinions mentioned as to the condition of the market. Most of the trade said the influx of orders and the longer volume of sales reflected a normal, healthy market which was to be expected at this time of the year. Several others, however, said they believed the market fictitious. They pointed to the fact that stocks were at a high level and did not believe there had been a great enough movement in the past few weeks to take any great amount out of storage.

The trade generally said that orders were small because only small buyers were making purchases. Big purchasers with ample storage were believed well taken care of for the present.

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Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	Oct. 14	Oct. 7	Sept. 30
New York harbor	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
Portland district	*11.00	*11.00	**10.25–10.75
Boston district	*10.50	*10.50	** 9.75–10.25
Providence district	*10.50	*10.50	** 9.75–10.25
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00	9.00	9.00
Norfolk district	9.00	9.00	9.00
Charleston district	9.00	9.00	9.00
Savannah district	9.00	9.00	9.00
Jacksonville district	9.00	9.00	9.00
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	9.00	9.00 – 9.25	9.00 – 9.25
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
WATER WHITE KEROSENE			
New York harbor	7.75	7.75	7.75
Philadelphia district	7.75	7.75	7.75
Baltimore district	7.75	7.75	7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75	4.75	4.75
Boston district	4.75	4.75	4.75
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
Boston district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
GRADE C BUNKER OIL†			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10
MEDICINAL OILS, RUSSIAN			
.885-890 s.g. 320-330 vis.	$0.82 – 0.97	$0.82 – 0.97	$0.82 – 0.97
.870-875 s.g. 145-155 vis.	$0.74 – 0.89	$0.74 – 0.89	$0.74 – 0.89

Note: Above gasoline prices do not include inspection tax levied in some states
*Nominal and Minimum delivered. **Delivered prices. †Lighterage 5c per bbl. additional.

New York Export Market

(Lubricating oils are per gal. in bbls.)

	Oct. 14	Oct. 7	Sept. 30
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	57.00 –60.00	57.00 –59.00	57.00 –59.00
600 D filtered	41.00 –46.00	41.00 –44.00	41.00 –44.00
600 Warren E filtered	40.00 –41.00	40.00 –41.00	40.00 –41.00
600 s.r. unfiltered	31.00 –33.00	31.00 –33.00	28.00 –31.00
650 s.r. unfiltered	37.00 –38.00	36.00 –38.00	35.00 –36.50
600 flash, s.r.	39.00 –41.00	38.00 –40.00	37.00 –39.00
630 flash, s.r.	43.00 –45.00	42.00 –44.00	42.00 –44.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	18.00 –20.00	18.00 –20.00	18.00 –20.00
200 vis. No. 6 color	16.00 –17.00	16.00 –17.00	16.00 –17.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	21.00 –22.00	20.00 –21.00	20.00 –21.00
180 vis. No. 3¼ color	17.00 –18.00	17.00	17.00
100 vis. No. 2¼ color	16.00	16.00	16.00
MOTOR OILS (Vis 100°)			
600 vis. No. 7 color	30.00 –32.00	33.00 –34.00	33.00 –34.00
500 vis. No. 6½ color	28.00 –29.00	31.00	31.00
400 vis. No. 7¼ color	26.00 –27.00	30.00	30.00
300 vis. No. 6 color	23.00 –24.00	23.00 –25.00	23.00 –25.00
200 vis. No. 6 color	21.00 –22.00	20.00 –22.00	20.00 –22.00
MEDICINAL OILS			
.875-880 s.g.	$0.76 – 0.91	$0.76 – 0.91	$0.76 – 0.91
.860-.865 s.g.	$0.58 – 0.73	$0.58 – 0.73	$0.58 – 0.73
WAXES (In cents per pound, f.a.s. carload lots)			
WHITE CRUDE SCALE (In barrels)			
122-124 A.m.p.	3.375– 3.50	3.125– 3.25	3.00 – 3.125
124-126 A.m.p.	3.375– 3.50	3.125– 3.25	3.00 – 3.125
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
125-127 A.m.p.	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
128-130 A.m.p.	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
130-132 A.m.p.	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
133-135 A.m.p.	6.00	6.00	6.00
135-137 A.m.p.	6.25	6.25	6.25
YELLOW CRUDE SCALE			
124-126 A.m.p.	3.25 – 3.375	3.00 – 3.125	2.875– 3.00

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	Oct. 14	Oct. 7	Sept. 30
U. S. Motor	8.50	8.50	8.50
60-62, 400 e.p.	9.50	9.50	9.50
61-63, 390 e.p.	9.75	9.75	9.75
64-66, 375 e.p.	10.00	10.00	10.00
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.00	$2.00	$2.00
KEROSENE			
44 water white	8.00	8.00	8.00
41-43 prime white	7.00	7.00	7.00
Water white, cases (cargoes)	$1.80	$1.80	$1.80
Prime white, cases (cargoes)	$1.70	$1.70	$1.70
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	4.00	4.00	4.00
*30 plus translucent gas oil	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
Grade C bunker oil	$0.95	$0.95	$0.95
Grade C bunker oil, cargoes	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75

*Less than ½ of 1% sulphur.

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65
Grade C bunker oil for bunkering purposes, taxes paid	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95

SOUTH TEXAS LUBRICATING OILS, (Viscosity at 100°F.) (cold test) (Tanker, f. o. b. Houston)

100 vis. No. 2 unfiltered pale	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
200 vis. No. 3 unfiltered pale	8.25 – 9.00	8.25 – 9.00	8.25 – 9.00
300 vis. No. 3 unfiltered pale	9.75 –10.00	9.75 –10.00	9.75 –10.00
500 vis. No. 3½ unfiltered pale	11.25 –11.50	11.25 –11.50	11.25 –11.50
750 vis. No. 4 unfiltered pale	12.75 –13.00	12.75 –13.00	12.75 –13.00
1200 vis. No. 5 unfiltered pale	16.25 –16.50	16.25 –16.50	16.25 –16.50
200 vis. No. 5-6 red oil	8.00	8.00	8.00
300 vis. No. 5-6 Red oil	8.50	8.50	8.50
500 vis. No. 5-6 red oil	9.25 –10.00	9.25 –10.00	9.25 –10.00
750 vis. No. 5-6 red oil	12.00	12.00	12.00
1200 vis. No. 5-6 red oil	16.25 –16.50	16.25 –16.50	16.25 –16.50

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipment of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	Oct. 14	Oct. 7	Sept. 30
U. S. Motor gasoline	7.50	7.50	7.50
41-43 w.w. kerosene	6.50 – 6.625	6.50 – 6.625	6.50 – 6.625
*26-32 translucent gas oil	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125

*Less than ½ of 1% sulphur.

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Oct. 14	Oct. 7	Sept. 30
Gasoline, U. S. Motor, 53-55 Gravity	6.75 – 7.25	6.75 – 7.25	6.50 – 7.50
Gasoline, U. S. Motor-blends and special cuts	7.50 –10.00	7.50 –10.00	7.50 –10.00
Gas Oil, 30-34, per barrel	$0.90 –$1.05	$0.90 –$1.05	$0.90 –$1.05
Diesel Oil, 27 plus, per barrel	$0.875–$1.00	$0.875–$1.00	$0.875–$1.00
Bunker oil, 14-18, per barrel	$0.70 –$0.85	$0.70 –$0.85	$0.70 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125, 150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Oct. 14 Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	35	40–42
Gulf to U. K. or Continental ports*	22–23	25–27
North Atlantic to U. K. or Continental ports*	19–20	23–25
Calif. to North Atlantic ports (not E. of N. Y.)	$1.00–$1.10	$0.95–$1.05
Gulf to North Atlantic ports (not E. of N. Y.)**	38–40	38–40

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.
**Venezuela loading same rate. For Tampico 3c per bbl. additional.

HE WILL THANK YOU FOR THIS SERVICE

Lost gas tank cap—you discover the loss—the customer expects to get a replacement cap from you. Why should he shop around for it?

Have Monmouth Caps ready for emergencies like this, and you'll make new friends. It's a service motorists appreciate—you save them time and trouble.

And best of all it costs you little in investment, nothing at all in time—and there's a worthwhile profit in every replacement.

An attractive display board—with a cap to fit every car, is your silent salesman.

Monmouth Caps are leak-proof, rattle-proof and can't get lost. On or off with a ⅛ turn.

Made and sold by
THE EATON BUMPER AND SPRING SERVICE COMPANY · *Cleveland, Ohio*
Branches: Atlanta, Boston, Chicago, Cleveland Dallas, Denver, Kansas City, Philadelphia

Fit every car
Never get lost
Can't rattle
Go on easily
Come off quickly
Leak-proof

Tank Wagon Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t. w. and s. s. markets for a whole year, arranged for quick reference)

These Prices in Effect Oct. 14, 1929, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	14	2	16	18	13
Newark, N. J.	15	2	17	19	13
Annapolis, Md.	16	4	20	22	13
Baltimore, Md.	15	4	19	21	12
Cumberland, Md.	16	4	20	22	13
Washington, D. C.	15	2	17	19	13
Danville, Va.	16	5	21	23	12
Norfolk, Va.	15	5	20	22	13
Richmond, Va.	15	5	20	22	13
Roanoke, Va.	15	5	20	21	13
Petersburg, Va.	16	5	21	23	13
Charleston, W. Va.	15	4	19	21	13
Keyser, W. Va.	16	4	20	22	13
Parkersburg, W. Va.	15	4	19	21	12
Wheeling, W. Va.	16	4	20	22	13
Charlotte, N. C.	16	5	21	23	13
Hickory, N. C.	16	5	21	23	13
Mt. Airy, N. C.	16	5	21	23	13
Salisbury, N. C.	16	5	21	23	13
Charleston, S. C.	15	6	21	23	13
Columbia, S. C.	16	6	22	24	13

Note: 2c per gallon discount off t.w. price of gasoline to dealers and commercial consumers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	14	4	18	21	15.5
Pueblo, Colo.	14	4	18	21	15.5
Grand Junc., Colo.	18.5	4	22.5	25.5	19
Casper, Wyo.	17	4	21	24	14
Cheyenne, Wyo.	18	4	22	25	15.5
Butte, Mont.	20.5	5	25.5	28.5	20
Helena, Mont.	20.5	5	25.5	28.5	20
Salt Lake City, Utah	18.5	3½	22	25	17
Boise, Ida.	20.5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	28.5	19
Albuquerque, N. M.	16	5	21	24	17

S. O. CALIFORNIA

Phoenix, Ariz.	14	4	18	22	20.5
Los Angeles, Cal.	16.5	3	19.5	22.5	15.5
Fresno, Cal.	17	3	20	23	17
San Francisco, Cal.	17	3	20	23	15.5
Reno, Nev.	21	4	25	28	19
Portland, Ore.	17.5	3	20.5	23.5	16.5
Seattle, Wash.	17.5	3	20.5	23.5	16.5
Spokane, Wash.	21.5	3	24.5	27.5	20.5
Tacoma, Wash.	17.5	3	20.5	23.5	16.5

Note: 4c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only.

S. O. LOUISIANA

Little Rock, Ark.	16	5	21	23	13
Alexandria, La.	‡15	4	19	21	†16
Baton Rouge, La.	14	4	18	20	†14.5
Lake Charles, La.	††16.5	4	††20.5	††22.5	†16
New Orleans, La.	*11	4	*15	17	†13
Shreveport, La.	15.5	4	19.5	21.5	†15
Lafayette, La.	**16	4	**20	**22	†14
Bristol, Tenn.	16	5	21	22	14
Chattanooga, Tenn.	15	5	20	22	14
Knoxville, Tenn.	15	5	20	20	16
Nashville, Tenn.	14	5	19	19	16
Memphis, Tenn.	15	5	20	22	12.5

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. Louisiana territory.

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax in addition to 4c state tax.

††Lake Charles gasoline prices include 1c parish tax.

S. O. KENTUCKY

Ashland, Ky.	13	5	18	19	15.5
Catlettsburg, Ky.	13	5	18	19	15.5
Lexington, Ky.	15	5	20	22	15.5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	16	5	21	22	15.5
Clarksdale, Miss.	13	5	18	20	12.5
Gulfport, Miss.††	17.5	5	22.5	24.5	14
Jackson, Miss.	16	5	21	23	13
Natchez, Miss.	15.5	5	20.5	20.5	14
Vicksburg, Miss.	15.5	5	20.5	22.5	14
Birmingham, Ala.	15	4	19	21	15
Mobile, Ala.‡	16	4	20	22	15
Montgomery, Ala.*	17	4	21	23	16.5
Atlanta, Ga.	14	6	20	22	†16.5
Augusta, Ga.	14	6	20	22	†15.5
Macon, Ga.	17	6	23	25	†16.5
Savannah, Ga.	16	6	22	24	†15.5
Jacksonville, Fla.	16	6	22	24	14.5
Miami, Fla.	17	6	23	25	15.5
Tampa, Fla.	16	6	22	24	14.5
Pensacola, Fla.**	17	6	23	25	14.5

Latest Changes in Tank Wagon Prices

Gasoline Changes

S. O. New Jersey—T.w. and s.s. cut 1c through New Jersey except Atlantic City, **Oct. 10.**

T.w. and s.s. cut 1c Baltimore, Washington, Norfolk, Richmond, Charleston, W. Va., Parkersburg, and Charleston, S. C., **Oct. 10.**

Atlantic Refining—T.w. and s.s. gasoline cut 1c, through New Jersey, except Atlantic City unchanged, **Oct. 10.**

S. O. Louisiana—S.s. cut 2c, Knoxville, to 20c, **Sept. 25.**

S. O. Ohio—T.w. up 1c, s.s. up 2c, to statewide schedule of 19c and 20c, through Mahoning county, and Jamestown, **Oct. 14.**

Magnolia Petroleum—T.w. and s.s. cut 1c, Muskogee, to 16c and 19c respectively, **Oct. 4.**

Canada—T.w. and s.s. up 3c, Ottawa, to 21.5c and 25c respectively, including 5c tax, **Oct. 10.**

Correction: Previous to the general 1c cut through Canada on Oct. 1, a cut of 2c on t.w. and s.s. prices had been made in New Brunswick, Nova Scotia and Prince Edward Island, **Sept. 25.** That cut is reflected in tank wagon table in this issue.

The 1c cut on Oct. 1 was through Canada excepting Vancouver. Prices at that point are corrected in the tank wagon table in this issue.

Kerosene Changes

Canada—Kerosene cut 1c through Canada, except British Columbia unchanged, and ½c through Ontario except Fort William unchanged, **Oct. 1.**

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. NEBRASKA

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Omaha, Neb.	16.25	4	20.25	22.25	13.25
McCook	17.75	4	21.75	23.75	14.75
Norfolk	16.75	4	20.75	22.75	13.75
North Platte	17.75	4	21.75	23.75	14.50
Scottsbluff	17.75	4	21.75	23.75	14.25

S. O. INDIANA

Chicago, Ill.	16	3	19	20	13
Decatur, Ill.	16.2	3	19.2	20.2	13.1
E. St. Louis, Ill.	15.4	3	18.4	17.4	12.2

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W
Joliet, Ill.	16.4	3	19.4	20.4	13.3
Peoria, Ill.	16.2	3	19.2	20.2	13.1
Quincy, Ill.	16.2	3	19.2	20.2	12.9
Indianapolis, Ind.	16.2	4	20.2	21.2	14.2
Evansville, Ind.	16	4	20	21	14
South Bend, Ind.	16.4	4	20.4	21.4	14.4
Detroit, Mich.	16.8	3	19.8	20.8	14.7
Grand Rapids, Mich.	16.7	3	19.7	20.7	14.6
Saginaw, Mich.	16.9	3	19.9	20.9	14.8
Green Bay, Wisc.	16.6	2	18.6	19.6	13.4
Madison, Wisc.	16.3	2	18.3	17.3	13.1
Milwaukee, Wisc.	16.1	2	18.1	19.1	12.9
La Cross, Wisc.	17.2	2	19.2	20.2	14
Minneapolis, Minn.	17.2	3	20.2	21.2	13.9
Duluth, Minn.	17.5	3	20.5	21.5	13.9
Mankato, Minn.	17.1	3	20.1	21.1	13.7
Des Moines, Ia.	16.5	3	19.5	20.5	13.3
Davenport, Ia.	16.5	3	19.5	20.5	13.3
Sioux City, Ia.	16.1	3	19.1	20.1	12.9
Mason City, Ia.	16.5	3	19.5	20.5	13.3
St. Louis, Mo.	*15.9	2	17.9	18.9	12.3
Kansas City, Mo.	†16.9	2	18.9	19.9	11.6
St. Joseph, Mo.	†16.5	2	18.5	19.5	12.2
Fargo, N. D.	18.9	3	21.9	22.9	15.9
Grand Forks, N. D.	19.2	3	22.2	23.2	16.2
Minot, N. D.	18.9	3	21.9	22.9	15.9
Pierre, S. D.	17	4	21	22	14.4
Huron, S. D.	17.3	4	21.3	22.3	14.7
Wichita, Kans.	14.8	3	17.8	18.8	11.8
Bartlesville, Okla.	14.5	4	18.5	19.5	11.5

S. O. Indiana's quantity contract price schedule thru territory except Chicago on tank truck deliveries of gasoline, figured from the service station price, is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 5c for 6000 gals. or more a month.

In Chicago and vicinity, these discounts apply. Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state-wide.	15	4	19	20	13
Paulding County.	15	4	19	20	11
Belmont, Columbiana, Jackson, Meigs, Noble, Vinton, Washington, Monroe, Gallia and Jefferson Counties, & *13 Competitive Pts.	14	4	18	18	13
At †5 Competitive Points	14	4	18	19	13
Bryan and Findlay.	13	4	17	17	13

Note:—Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price with some exceptions.

†These 5 points are: Hicksville, Arlington, Mortimer, Mendon, and Nevada.

*These 13 points are: Arcadia, Perrysburg, Fostoria, Urbana, Marion, St. Paris, Ada, Lima, Hamilton, Willard, Wapakoneta, St. Johns and Piqua.

MAGNOLIA PETROLEUM

Muskogee, Okla.	12	4	16	19	13
Oklahoma City.	13	4	17	20	10
Tulsa, Okla.	11	4	15	19	10
Fort Smith, Ark.†	11	†4	15	17	12
Little Rock, Ark.	14	5	19	23	13
Texarkana, Ark.*	13	*4	17	19	12
Dallas, Tex.	13	4	17	21	13
Fort Worth, Tex.	13	4	17	20	12
Houston, Tex.	9	4	13	17	11
San Antonio, Tex.	13	4	17	21	11
El Paso, Tex.	11	4	15	18	16

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings.	14	2	16	18	15
Borough of Richmond.	15	2	17	19	15
Albany, N. Y.	16	2	18	20	15
Buffalo, N. Y.	16	2	18	20	14
Rochester, N. Y.	16	2	18	20	13
Syracuse, N. Y.	16	2	18	20	12
Boston, Mass.	16	2	18	20	15

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Florida, 1/8c on both; Georgia, 1/10c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/50c to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa, 7/100c; Michigan 1/5c to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above state or other states there are local inspection fees.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect Oct. 14, 1929

S. O. NEW YORK

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Augusta, Me	16	4	20	21	15
Manchester, N. H.	16	4	20	22	15
Burlington, Vt.	16	4	20	22	15

Note:—S. O. New York allows concessions of 1 to 2c per gal. to dealers under posted tank wagon prices.
*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	22	13
Philadelphia, Pa.	16	*	16	22	13
Allentown, Pa.	16	*	16	22	13
Erie, Pa.	13	*	13	17	13
Scranton, Pa.	16	*	16	22	13
Altoona, Pa.	16	*	16	22	13
Williamsport, Pa.	15	*	15	19	13
Dover, Del.	16	3	19	21	13
Wilmington, Del.	16	3	19	21	13
Boston, Mass.	16	2	18	20	15
Springfield, Mass.	16	2	18	20	15
Worcester, Mass.	16	2	18	20	15
Fall River, Mass.	16	2	18	20	13
Providence, R. I.	16	2	18	20	13
Hartford, Conn.	16	2	18	20	14
New Haven, Conn.	16	2	18	20	15
Atlantic City, N. J.	14	2	16	18	13
Camden, N. J.	15	2	17	19	13
Trenton, N. J.	15	2	17	19	13
Annapolis, Md.	16	4	20	22	13
Baltimore, Md.	16	4	20	22	12
Hagerstown, Md.	12	4	16	18	13
Richmond, Va.	16	5	21	23	13
Wilmington, N. C.	16	5	21	23	13
Brunswick, Ga.	16	6	22	24	**15.5
Jacksonville, Fla.	16	6	22	24	14.5

Note: 2c per gal. discount off t.w. price of gasoline thru territory; also 2c off to commercial accounts under contract for one year.
*4-cent state tax is collected by retail dealer and paid by him directly to state.
**Georgia kerosene prices include 1c state tax

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	15.7	17.2	19
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**19.7	**21.2	*23
St. Louis	15.6	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits

	(Solvent)
Tank Cars	
New York refineries	11.50–12.00
Philadelphia refineries	11.50–12.00
Tank Wagon or Steel Barrels	
New York City	16–18
New England	18–19
New Jersey	16–18
Pennsylvania	18–19

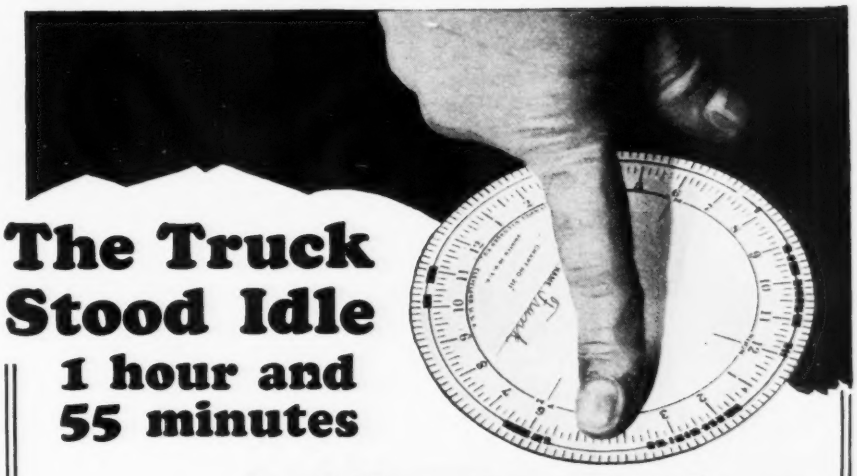
Note: 2c off above t.w. prices to large buyers in some instances.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
ONTARIO					
Toronto	19.5	5	24.5	28	20.5
Ottawa	16.5	5	21.5	25	20.5
Cochrane	24.5	5	29.5		25.5
Ft. William	22.5	5	27.5	31	23.5
MANITOBA					
Winnipeg	21.5	3	24.5	28	21.5
SASKATCHEWAN					
Regina	26	3	29	33	26
ALBERTA					
Edmonton	27.5	5	32.5	36	27.5
Calgary	23.5	5	28.5	32	23.5
BRITISH COLUMBIA					
Vancouver	23	3	26	30	24
QUEBEC					
Montreal	20.5	5	25.5	29	21
Quebec City	21.5	5	26.5	30	22
Three Rivers	21.5	5	26.5	30	22
NEW BRUNSWICK					
St. John	22	5	27	31	24
Moncton	22	5	27	31	24
NOVA SCOTIA					
Halifax	22	5	27	31	24
Sydney	22	5	27	31	24
PRINCE EDWARD ISLAND					
Charlottetown	22	5	27	31	24

Note: In districts surrounding these points 1c additional is added to city price.



The Truck Stood Idle 1 hour and 55 minutes

And You Can Put Your Finger Right On It!

WHAT does it cost when a Tank Truck "pauses" somewhere for an hour and 55 minutes?

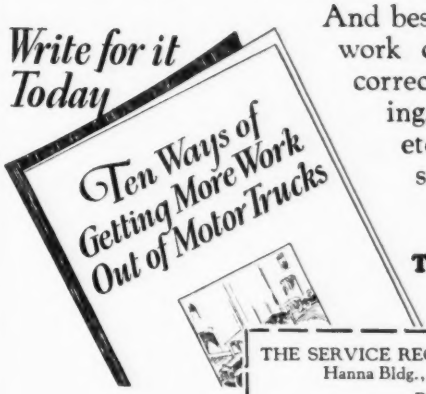
It costs pretty close to $8.00!

That's plenty, we'd say.

One thing is certain, you never realize it until you SEE it. And when you see it in chart form, [like that above] then, we repeat, you can put your finger right on those delays; and then you'll know what to do, all right!

A Truck Can Easily Waste $1,000 a Year!

Why allow it, when the *Servis Recorder* can prevent these costly delays? All you need is a screwdriver—why, you could *nail* this *Servis Recorder* on your truck and it will give you every day this "picture" of the work your truck did during the past 24 hours—the heavy marks on the chart registering the truck *at work* and the spaces in between showing when it was *idle*.



And besides getting a real day's work out of each truck, you correct such abuses as Speeding, Overtime, Night Work, etc. Send for the whole story today. Use the coupon below.

The Service Recorder Co.
Cleveland, Ohio

THE SERVIS RECORDER
"Keeps Trucks Busy"

THE SERVICE RECORDER CO.,
Hanna Bldg., Cleveland, Ohio.

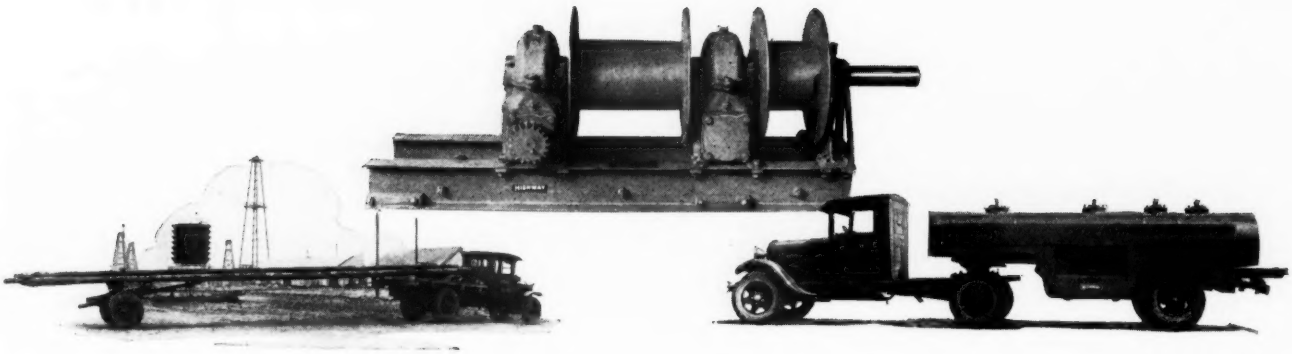
Please send us, without obligation, "Ten Ways of Getting More Work Out of Motor Trucks."

Company .....

Attention of .....

Street .....

Town ..... State .....



from oil field to pumping station . . . . .

Highway Trailers cut hauling costs for every branch of the oil industry

The world's largest trailer plants

Highway Trailers are engineered and manufactured complete in our own organization, except for Timken bearings and rubber tires. Complete control over every manufacturing process results in greater payloads at faster speed for owners. A complete engineering organization is here to aid in the solution of your transportation problems.

Transportation and transportation costs are major problems of the oil industry. Transportation of oil field supplies and equipment from the base of supply to the scene of oil drilling operations — hauling barrels, cans and cases about the refinery — shipping from refinery to bulk station — delivering to retail outlets — all these operations are made more efficient and less expensive by Highway Trailers.

Highway equipment is especially designed for the oil industry. Our Pipe and Pole Trailers are standard equipment in the oil fields. Highway semi-trailers and 4-wheel stake body jobs cut costs at the refinery. Highway Tank Trailers reduce cost of delivery to filling stations.

Write today for new bulletins telling about how Highway can cut hauling costs for you.

HIGHWAY TRAILER CO.

General Offices: Edgerton, Wis. **Plant No. 2: Stoughton, Wis.**

Branches and Distributors in All Principal Cities

Crude Oil Prices (in Effect Oct. 14, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS
(All Penna. Crude prices effective Oct. 1, 1929)
(Posted by Joseph Seep Purchasing Agency)
Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District).....*$3.05
Bradford District Oil in National Transit Lines (Bradford District).....*3.05
Penna. Grade Oil in National Transit Lines (Other Pennsylvania).....*3.05
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)..... 3.00
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 2.90
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)..... 2.70
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective May 22, 1929)..... 1.90
Corning, O., heavy grade (Effective May 22, 1929) 1.80
Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective May 22, 1929)..... 1.80
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 29, 1929).....$0.60
***Oil run prior to July 1, 1929 is $3.00 per bbl.**
(Posted by Stoll Oil Refining Co.)
Oil City, Ky., oil in Stoll lines (Effective Oct. 7, 1929)..... $1.70

MICHIGAN
(Posted by Dixie Oil Co.)
Traverse and Dundee (Muskegon):

32-32.9	$1.25	39-39.9	$1.60
33-33.9	1.30	40-40.9	1.65
34-34.9	1.35	41-41.9	1.70
35-35.9	1.40	42-42.9	1.75
36-36.9	1.45	43-43.9	1.80
37-37.9	1.50	44 and above	1.85
38-38.9	1.55		

(Posted by Pure Oil Co.)
Midland, Midland County.....$1.70

CENTRAL STATES FIELDS
Posted by Ohio Oil Co.
Effective May 21, 1929

Wooster	$1.90	Princeton	$1.75
Lima	1.80	Illinois	1.75
Waterloo	1.20	Plymouth	1.28
Indiana	1.57	West Kentucky	1.83

CANADIAN CRUDE
Posted by Imperial Oil Refineries, Ltd.
Petrolia.....$2.20
Oil Springs..... 2.27

OKLAHOMA, KANSAS and NORTH TEXAS
Prices of Pariric Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)
Effective May 20, 1929

Below 25	$0.85	35-35.9	$1.40
25-25.9	0.90	36-36.9	1.45
26-26.9	0.95	37-37.9	1.50
27-27.9	1.00	38-38.9	1.55
28-28.9	1.05	39-39.9	1.60
29-29.9	1.10	40-40.9	1.65
30-30.9	1.15	41-41.9	1.70
31-31.9	1.20	42-42.9	1.75
32-32.9	1.25	43-43.9	1.80
33-33.9	1.30	44 and above	1.85
34-34.9	1.35		

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)
May 20, 1929, same schedule as Prairie in above fields.

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)
May 20, 1929, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 26	$0.70	29-29.9	0.95
26-26.9	0.75	30-30.9	1.05
27-27.9	0.85	31-31.9	1.15
28-28.9	0.90		

May 20, 1929, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in West Texas which see.
Iatan district.....$0.93
Corsicana heavy..... 0.80
Luling..... 0.90
Mirando..... 0.90

Carter Oil Co.
(Oklahoma and Kansas)
May 20, 1929, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS
Humble Oil & Refining Co.
Effective May 20, 1929
Hutchinson and Carson Counties:

Below 32	$0.90	38-38.9	$1.25
32-32.9	0.95	39-39.9	1.30
33-33.9	1.00	40-40.9	1.35
34-34.9	1.05	41-41.9	1.40
35-35.9	1.10	42-42.9	1.45
36-36.9	1.15	43-43.9	1.50
37-37.9	1.20	44 and above	1.55

Wheeler County:

Below 30	$0.90	37-37.9	$1.30
30-30.9	0.95	38-38.9	1.35
31-31.9	1.00	39-39.9	1.40
32-32.9	1.05	40-40.9	1.45
33-33.9	1.10	41-41.9	1.50
34-34.9	1.15	42-42.9	1.55
35-35.9	1.20	43-43.9	1.60
36-36.9	1.25	44 and above	1.65

Gray County:

Below 29	$0.90	37-37.9	$1.35
29-29.9	0.95	38-38.9	1.40
30-30.9	1.00	39-39.9	1.45
31-31.9	1.05	40-40.9	1.50
32-32.9	1.10	41-41.9	1.55
33-33.9	1.15	42-42.9	1.60
34-34.9	1.20	43-43.9	1.65
35-35.9	1.25	44 and above	1.70
36-36.9	1.30		

Above prices met by The Texas Co. and Magnolia on May 20.

WEST TEXAS
Humble Oil & Refining Co.
Effective May 20, 1929
Winkler, Crane, Upton, Crockett, Howard and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.70	25-25.9	$0.74
26-26.9	0.78	32-32.9	$1.02
27-27.9	0.82	33-33.9	1.06
28-28.9	0.86	34-34.9	1.10
29-29.9	0.90	35-35.9	1.14
30-30.9	0.94	36 and above	1.18
31-31.9	0.98		

May 20, 1929, The Texas Co. posted same prices as Humble in Crane, Upton, Pecos and Winkler., and Magnolia in Crane, Upton, Winkler, Glasscock, Howard and Mitchell.

SOUTHWEST TEXAS
(Posted by Humble Oil & Refining Co.)
Effective May 20, 1929
Mirando.....$0.90
Salt Flat..... 1.25

NORTH LOUISIANA—ARKANSAS FIELDS
Prices of Standard Oil Co. of Louisiana
Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.
Effective May 22, 1929

Below 28	$1.00	36-36.9	$1.45
28-28.9	1.05	37-37.9	1.50
29-29.9	1.10	38-38.9	1.55
30-30.9	1.15	39-39.9	1.60
31-31.9	1.20	40-40.9	1.65
32-32.9	1.25	41-41.9	1.70
33-33.9	1.30	42-42.9	1.75
34-34.9	1.35	43-43.9	1.80
35-35.9	1.40	44 and above	1.85

**Cotton Valley, below 36, $0.85. Beginning with 36-36.9, same schedule as above.
Smackover, below 24.....$0.85
do 24 and above..... 1.00
Bellevue..... 1.30
*Urania, La..... 1.10
†East El Dorado..... 0.75
*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.
May 20, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.85; 25-25.9, $0.90; 26-26.9, $0.95; 27-27.9, $1.00.
May 22, Magnolia, Atlantic, Shreveport-Eldorado Pipe Line, Louisiana Oil, and Gulf Companies met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS
Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.
Effective May 22, 1929

Below 28	$0.90	30-30.9	$1.02
28-28.9	0.94	31-31.9	1.06
29-29.9	0.98	32 and above	1.10

GULF COASTAL
Posted by Humble Oil & Refining Co.
Effective May 20, 1929

Grades A	$1.30	29-29.9	$1.30
Grades B:		30-30.9	1.33
Below 25	$1.15	31-31.9	1.36
25-25.9	1.18	32-32.9	1.39
26-26.9	1.21	33-33.9	1.42
27-27.9	1.24	34-34.9	1.45
28-28.9	1.27	35 and above	1.48

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only.

Offers Prizes to Promote Sign Elimination

CLEVELAND, Oct. 12.—The Standard Oil Co. of California has announced a prize contest for ideas which will aid in eliminating roadside signs along the Pacific coast. "Scenic or Sign-ic" is the title of a booklet announcing the contest.

The Standard is practicing what it preaches with respect to sign elimination. Several years ago the company tore down 1200 signs in its territory and now uses signs only at commercial locations.

For 1500 word answers to the question, "How can the erection of objectionable advertising signs along highways and at scenic points be prevented and how can the removal of such existing signs be accomplished?" the company offers three prizes totaling $1750.

For 500 word answers to the question, "Why should objectionable signs which obscure or deface natural scenic beauties be eliminated?" the company offers three prizes totaling $875.

To obtain an anti-sign slogan the company offers three prizes totaling $450. For photographs illustrating scenic obscurity or defacement by signs five prizes totaling $400 are offered. The contest closes Oct. 20 and is open only to persons living in S. O. California territory.

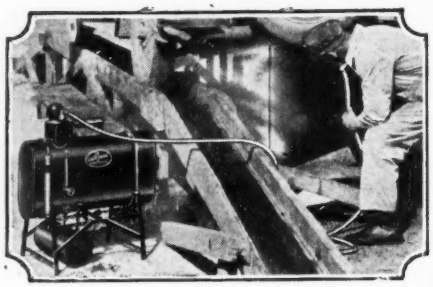
Low Gasoline Bids Are 17.80c to 19c

RICHMOND, Va., Oct. 11.—Lowest bids received by the state highway commission of Virginia on gasoline requirements for six months ending April 15, 1930, range from 17.80 to 19 cents. Estimated gasoline needed will be 1,111,800 gallons, and lubricating oil 60,000 gallons. Bids were submitted on individual needs of 26 resident engineers. Following are the low bids received on gasoline:

Central Oil Co., Norton, 41,000 gallons, 19 cents; Standard Oil & Gas Co., Clifton Forge, 80,000 gallons, 18.47 cents; Good Oil Co., Lynchburg, 45,000 gallons, 17.99 cents; Superior Gas & Oil Co., Lynchburg, 45,000 gallons, 18.41 cents and 60,000 gallons, 18.39 cents; James River Oil Co., Richmond, 76,000 gallons, 17.80 cents, less 2 per cent; Albemarle Oil & Gas Co., Charlottesville, 86,000 gallons 18.60 cents; and Frederick Northrup, Sharps, 33,000 gallons, 19 cents, less 1 per cent.

NEW YORK, Oct. 12.—The quarterly meeting of directors of the American Oil Burners Association will be held in Baltimore Oct. 23.

Grease Changes Easily in Cold Weather



The LIGHTNING LIQUEFIER

Cold Weather is Coming! Be Prepared!

Extra Profits Too!

With the coming of cold weather, service station operators quickly see the profit possibility of the Lightning Liquefier, a machine ideally adapted for their use. It brings in new customers and creates a lasting impression on the present ones.

The Lightning Liquefier is a portable outfit that quickly generates steam at low pressure and continuously furnishes it in large enough volume to speedily liquefy grease so that it will flow out from transmission and differential cases like water.

When you change grease for your customers, give them a complete change the Lightning way. Why not remove all the old grease that clings within the gears and casings. Not only is it speedily done, but a thorough job is accomplished—even to washing out with the old grease all of the dirt, metal chips, etc., which may be in the housing.

No extra or special help is needed. Any attendant can learn to operate it in a few minutes. Another thing for those who capitalize on service, consider the many jobs that hot steam will do, such as thawing out frozen pumps and oil lines, frozen radiators, frozen spring bolts, oilers, etc.

You will be surprised how low the cost and how quickly these machines pay for themselves.

Let us tell you all about it.

WARNER MFG. CO.
MINNEAPOLIS, MINN.

The LIGHTNING LIQUEFIER
for COLD CONGEALED GREASE

Skilled Supervision Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

STEEL
DRUM ACCESSORIES
CORPORATION

BUFFALO, NEW YORK

"The House of Drum Faucets"

Crude Oil Prices (in Effect Oct. 14, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective May 20, 1929

Grades A	$1.30	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.49	40-40.9	$1.69
36-36.9	1.53	41-41.9	1.73
37-37.9	1.57	42-42.9	1.77
38-38.9	1.61	43-43.9	1.81
39-39.9	1.65	44 and above	1.85

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective May 20, 1929)

‡Salt Creek 29-29.9	$1.10
" " 30-30.9	1.15
" " 31-31.9	1.20
" " 32-32.9	1.25
" " 33-33.9	1.30
" " 34-34.9	1.35
" " 35-35.9	1.40
" " 36-36.9	1.45
" " 37 and above	1.50
Elk Basin	1.65
Grass Creek light	1.65
Big Muddy	$1.43
Lance Creek	1.68
Rock Creek	1.40
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.65
‡Cat Creek, Mont.	1.65
Sunburst, Mont.	1.75
‡Hogback, N. Mex.	1.70
Artesia, N. Mex.	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Elwood Terrace	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway, Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Kettleman Hills	*Santa Maria (Orcutt)	*Ventura
14-14.9	$ .70	$ .70	$ .70	....	....	$ .70	$ .70	....	$ .50	$ .50	$ .50	$ .50	$ .50	$ .70	....	$ .65	$ .70
15-15.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
16-16.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
17-17.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
18-18.9	.75	.75	.75	....	....	.75	.75	....	.50	.56	.56	.56	.56	.70	....	.70	.75
19-19.9	.80	.80	.80	....	....	.80	.80	....	.50	.62	.62	.62	.62	.75	$1.65	.70	.80
20-20.9	.85	.85	.85	....	....	.84	.84	....	....	.68	.68	.68	.68	.80	for	.70	.85
21-21.9	.89	.89	.89	....	....	.88	.88	.89	....	.74	.74	.74	.74	.85	55°	.86	.86
22-22.9	.93	.93	.93	....	....	.91	.91	.92	....	.80	.80	.80	.80	.90	gravity	.87	.87
23-23.9	.97	.97	.97	....	....	....	.94	.95	....	.85	.85	.85	.85	.95	and	.90	.90
24-24.9	1.01	1.01	1.01	1.01	....	....	.97	.98	....	.90	.90	.88	.88	.98	over	.94	.94
25-25.9	1.05	1.05	1.05	1.05	....	....	1.00	1.01	....	.95	.95	.91	.91	1.01	....	.98	.98
26-26.9	1.09	1.09	1.09	1.09	....	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	....	1.02	1.02
27-27.9	1.13	1.13	1.13	1.13	....	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	....	1.10
29-29.9	1.21	....	1.21	1.21	....	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	....	....	1.14
30-30.9	1.25	....	1.25	1.25	....	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	....	1.18
31-31.9	1.30	....	....	1.30	....	....	....	1.25	....	1.28	1.28	1.14	....	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	....	....	1.30	....	1.34	1.34	1.18	....	....	....	....	1.28
33-33.9	....	....	....	1.41	....	....	....	1.35	....	1.40	1.40	1.22	....	....	....	....	1.34
34-34.9	....	....	....	1.47	$1.16	....	....	1.40	....	....	1.46	1.26	....	....	....	....	....
35-35.9	....	....	....	1.53	1.22	....	....	1.45	....	....	....	1.30	....	....	....	....	....
36-36.9	....	....	....	1.59	1.28	....	....	1.50	....	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	1.34	....	....	1.55	....	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	1.40	....	....	1.60	....	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	1.46	....	....	1.65	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	1.52	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	1.58	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	1.64	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except it does not post prices in Wheeler Ridge, Whittier, La Habra, Newhall and Kettleman Hills. Standard does not contract for crude testing 11-13.9 gravity, but pays 45c a barrel when purchased.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Oct. 14	Oct. 7
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$0.90-1.00	$0.90-1.00
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of cwt.	$3.10-4.00	$3.50-4.50
Liquid Chlorine, tank cars, wks. lb.	3.50-5.00	3.50-5.00

Compounders' Supplies

	Oct. 14	Oct. 7
Vegetable Oils		
Linseed carloads, spot lb.	16.30	15.90
Tanks, spot	15.50	15.10
Soya Bean, Tanks, coast, lb.	11.25	11.25
Oleic Acid		
Distilled, tanks lb.	9.75	9.75
Distilled, bbls. lb.	10.625	10.625
Saponified, tanks lb.	9.75	9.75
Saponified, bbls. lb.	10.625	10.625
Lard Oils		
Prime Winter Strained lb.	15.25	15.25
Extra Winter Strained lb.	12.75	12.75
Extra lb.	12.50	12.50
Extra No. 1 lb.	12.00	12.00
No. 1 lb.	11.75	11.75
No. 2 lb.	11.50	11.50
Tallow oil lb.	11.00	11.00
Neatsfoot Oil		
Pure, bbls. lb.	14.50	14.50
Extra, bbls. lb.	12.25	12.25
No. 1 bbls. lb.	12.00	12.00
Cold Pressed lb.	12.50	12.50
Fish Oils		
Menhaden Oil		
Light Pressed gal.	70	70
Light Pressed, tank cars, N. Y. gal.	58-60	58-60
White bleached gal.	76	76
Yellow bleached gal.	71	71
Whale, extra winter bleached, gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y. gal.	53	53
Steam distilled turpentine, Savannah gal.	53	53
Gum turpentine, N. Y. gal.	56.50	56.50
Gum turpentine, f.o.b. cars Savannah gal.	50.50	50.50
Wood Rosin F, N. Y. bbl.	$8.05	$8.05
Wood Rosin F, Savn'h. bbl.	$7.25	$7.25
Gum Rosin B, N. Y. Bbl.	$9.00	$9.00
Gum Rosin B, f.o.b. cars Savannah bbl.	$8.15	$8.15
Rosin oil, pure gal.	61	61
Rosin oil, compounded gal.	51	51
Pine Tar		
Kiln burnt bbl.	$13.00-14.00	$13.00-14.00
Retort bbl.	$13.50-14.50	$13.50-14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	59-66	59-66

OIL STOCKS AND FINANCES

National Petroleum News

Root Announces Private Sale of Common Stock

CLEVELAND, Oct. 12.—A block of no par common stock of the Root Refining Co. of El Dorado, Ark., which has been outstanding, has been sold privately, according to an advertisement of Weber, Lyon & Co. New York banking house. The price of the stock was not revealed. The Root stock is listed on the New York Curb Market.

Earnings of the company, according to a published letter from D. P. Hamilton, president, to the banking house, netted $400,992 in the first half of 1929 after reserves for depreciation and federal income taxes. This sum was equivalent, after dividends on the no par prior preference and preferred stock to $3.12 a share on the common, of which 102,000 shares are outstanding.

Net profits in 1928 were stated to have been $528,327; in 1927 $11,226, and in 1926 $219,689.

Concerning the company's properties and operations Mr. Hamilton wrote:

"Root Refining Co., a Delaware corporation, specializes in the manufacture of a high-grade anti-knock gasoline and is one of the few Independent refiners authorized by Ethyl Gasoline Corp. to manufacture and distribute 'Ethyl Gas.' The business also includes the producing, buying, selling and transporting of crude petroleum and the manufacture of other products, including kerosene, heavy lubricating oils, fuel oil, road oils, various grades of painters', cleaners' and solvent naphthas, etc. The sales territory embraces the states of Arkansas, Louisiana, Kansas, Missouri, Michigan, Illinois, Indiana, Ohio, Kentucky, Tennessee and the southeastern states. The company also exports its products to the foreign and coastwise trade.

"The company owns a refinery located near El Dorado, Ark. which comprises topping and cracking plants and an absorption plant, all of which are modern and highly efficient. At present the refinery is producing approximately 130,000 gallons of gasoline daily. An additional refinery unit of a new type was completed early in 1929. This has further reduced operating costs of the refinery, which now compare favorably with those of similar plants. The refinery is advantageously located within five to fifteen miles of important oil fields, including the Smackover field, East field and Rainbow (Champagnolle) field, and is connected with this crude oil supply by a system of pipe lines owned by the company, aggregating approximately 50 miles and having a daily capacity of approximately 40,000 barrels of crude oil.

"The company owns, or has an interest in the production from, leases having a daily settled production of about 1800 barrels of crude oil and has full or fractional interests in leases on more than 400 acres of undeveloped land. In addition to the above crude oil supply, the pipe lines of the company give access to the properties of many producers, including the Pure Oil Co. and Sun Oil Co., with whom very amicable relations are enjoyed and with whom the company has contracts for the purchase of crude oil."

Another Standard Oil Formed in Virginia

CLEVELAND, Oct. 12.—A charter has been granted in Richmond, Va., to the Standard Oil Co. of Virginia. The name of the president of the company is given as William W. Crump.

The Standard of Virginia has no connection with any of the established Standard companies, it is said. The company has mysterious backers like the Standard Oil Co. of Rhode Island, chartered in August at Providence, and the Standard Oil Co. of Delaware which was chartered several years ago.

Transcontinental Expanding

CLEVELAND, Oct. 12.—Transcontinental Oil Co. of Tulsa is reported to have purchased land for 16 service stations and one bulk station in its territory which includes Arkansas, Oklahoma, Texas, Nebraska, Iowa and South Dakota. With the completion of this new construction Transcontinental will have 83 bulk stations and 123 service stations.

Andian National Plans Stock Dividend

CLEVELAND, Oct. 12.—Stockholders of the Andian National Corp. will meet Nov. 9 to authorize directors to declare a stock dividend, according to a dispatch from Toronto, headquarters of the company.

The Andian is a subsidiary of the International Petroleum Co., which is controlled by Imperial Oil, Ltd. The amount of dividend contemplated was not revealed.

Andian, which has a 335-mile pipe line in Colombia, has outstanding 2,125,000 no par shares of 3,000,000 authorized. No dividends have ever been paid on the stock. The pipe line has been in operation since 1926.

It was built with 30,000 barrels daily capacity and was enlarged to 50,000 barrels daily in 1927.

CLEVELAND—Lion Oil Refining Co. has acquired a controlling interest in the Seven-Eleven Oil Co. of Greenwood, Miss.

Union To Pay Stock Also

LOS ANGELES, Oct. 10.—Union Oil Co. of California has declared a stock dividend of 1 per cent payable Nov. 9 to stock of Oct. 17 record. The stock payment, it is understood, is to be continued each quarter in addition to the regular cash dividend of 50 cents a share.

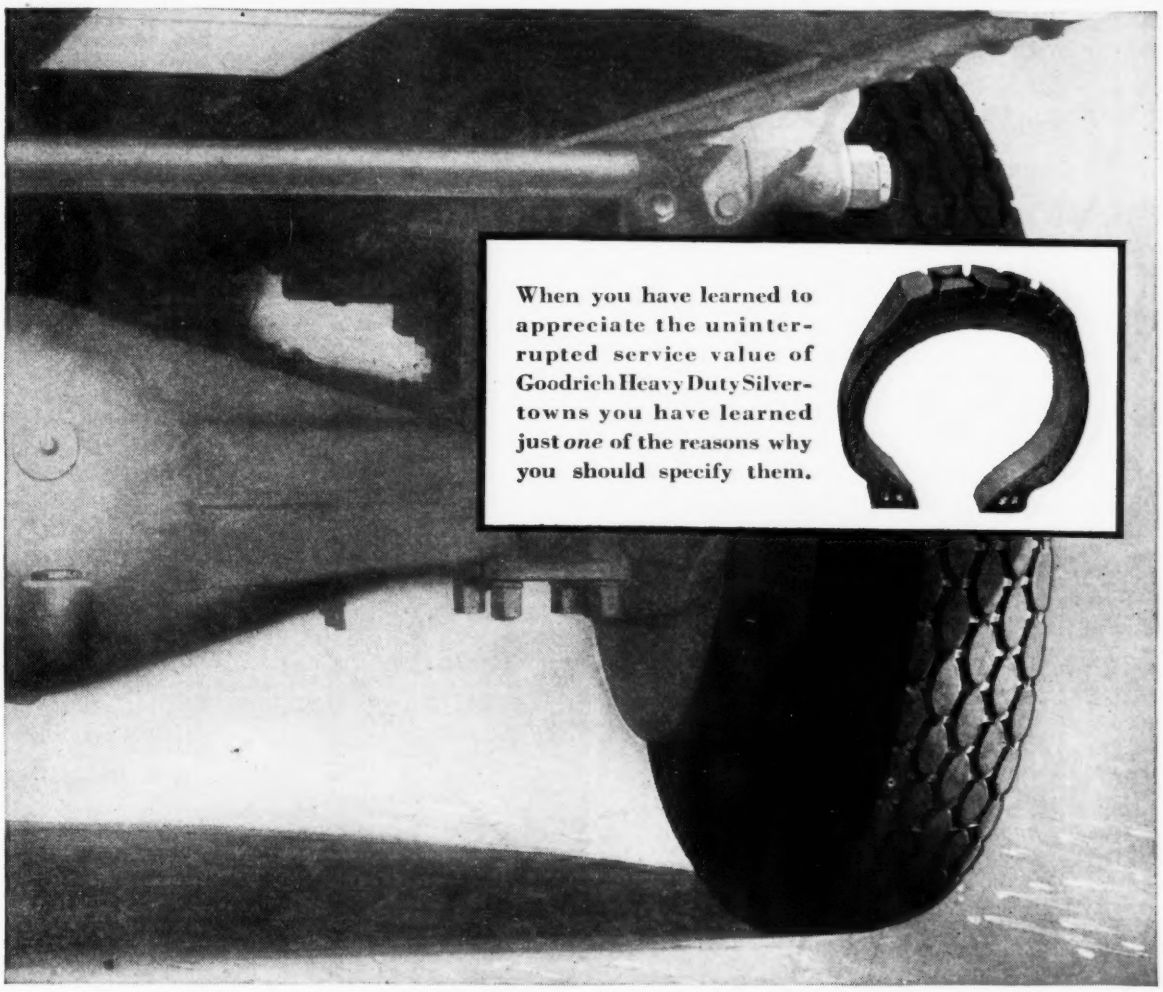
McColl-Frontenac Income Reported Increasing

NEW YORK, Oct. 12.—McColl-Frontenac Oil Co. of Montreal is reported to have netted in the first seven months of 1929 more than it did in all of 1928.

In the 13 months ended Jan. 31 the company netted $1,126,059 or $1.42 a share on the 500,000 shares of common stock outstanding after dividends on the preferred stock. No announcement was made of the amount of net profits for the calendar year 1928.

The company is expanding its refining and marketing facilities with

(*Continued on Page* 127)


When you have learned to appreciate the uninterrupted service value of Goodrich Heavy Duty Silvertowns you have learned just *one* of the reasons why you should specify them.

Note the thick shoulder-to-shoulder tread rubber right WHERE the Goodrich Heavy Duty Silvertown STRIKES the road

Rubber where the Tire *Needs* it most!

THICK, tough rubber! "Water cured" right on down through stretch-matched cords to the *innermost* ply.

That's the way the Goodrich Heavy Duty Silvertown Tire is made! That's the BIG reason *why* Goodrich Heavy Duty Silvertowns outlast other tires on a mileage basis.

Rubber *where the tire needs it most* is just another way of summing up the seven specific reasons—the seven superior specifications — that make Goodrich Tires give truck and bus operators longer *uninterrupted* service, greater *trouble-free* mileage!

When it comes down to a question of service and *mileage*, Goodrich Heavy Duty Silvertowns are your very *best* buy.

* * *

The B. F. Goodrich Rubber Company, Established 1870, Akron, Ohio. Pacific Goodrich Rubber Company, Los Angeles, Calif. In Canada: Canadian Goodrich Company, Kitchener, Ontario.

Seven
Superior Specifications
Built Into Every Heavy Duty Silvertown

1. Heavily insulated stretch-*matched* cords.
2. Additional *adhesion*—from greater insulation between outside plies.
3. Heavy *twin* beads for better rim seating.
4. Extra gum *fillers* between plies for longer tire life.
5. Heat-*resisting*, interlocking cord *breakers*.
6. Tread designed *correctly* for heavy duty service.
7. The whole tire toughened by the famous Goodrich "*water cure*."

Goodrich HEAVY DUTY Silvertowns

Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Oct. 12 Sales	First	High	Low	Last	Change
43⅞	27⅛	42⅝	22½	(sh) 922,075	N.P.	Amerada Corp.	50cQ	July 31, 29	200	26⅞	27⅝	26⅞	27⅜	+ ⅜
85	51¼	64¾	30	(sh) 209,180	N.P.	American Republics Corp.	....	.....	5,400	38	41¾	38	40⅜	+ 3⅜
53⅜	37½	47¼	40½	$56,000,000	$25	Associated Oil.	50cQ	Sept. 30, 29	40	44½	44½	44½	44½	0
62½	50	77⅞	53⅛	50,000,000	25	Atlantic Refining.	‡25cQ	Sept. 15, 29	42,000	57¾	60⅜	56⅞	57¾	+ ¾
53	20	49⅜	31½	47,261,125	25	Barnsdall Corp. A.	‡50cQ	Aug. 6, 29	29,600	34¼	35½	33⅝	33¾	+ 1¼
51⅛	20	49	38⅛	300,525	25	do B.	‡50cQ	Aug. 6, 29	.....	....	....	....	....	.....
24½	12¼	32⅞	20	(sh) 956,075	N.P.	Beacon Oil.	....	.....	8,900	28	29	28	29	+ 1⅜
36	25¼	34½	25	$51,524,150	$25	California Petroleum.	....	Jan. 1, 29	10	31	31	31	31	+ ⅛
....	....	37¾	29½	(sh) 4,634,163	N.P.	Continental Oil (Delaware).	....	.....	102,600	31⅝	35⅜	31½	34¼	+ 2⅜
94⅞	68	94¾	61	21,031,400	100	General Asphalt.	....	.....	17,500	82¾	85½	82	85	+ 2⅜
141	110⅛	138	104½	6,628,200	100	do pfd.	$1.25Q	Sept. 3, 29	400	125½	125½	125	125¼	— 2⅝
167	79	109	68½	25,000,000	100	Houston Oil.	....	.....	56,300	89⅜	94⅞	88⅛	90¼	+ 1⅜
38⅜	21¾	39¼	29⅜	(sh) 1,333,157	N.P.	Independent Oil & Gas.	50cQ	July 31, 29	14,300	30⅝	31¾	30½	31	+ ⅜
39⅝	9	53	29	$4,299,190	$10	Indian Refining.	....	Dec. 15, 20	46,400	42	45	42	43¼	+ ⅜
37¼	8½	51¼	28	4,550,110	10	do ctfs.	....	.....	30,600	40½	42¾	40¼	41⅝	+ 1⅜
185	140	165	160	1,977,700	100	do pfd. new.	$1.75Q	Oct. 1, 29	.....	....	....	....	....	.....
39⅛	27⅜	38⅜	26	3,992,387	N.P.	Lago Oil & Transport.	....	May 2, 27	9,800	29⅞	32¾	29⅞	32½	+ 4⅝
19¾	9⅜	18	10¼	(sh) 1,187,298	N.P.	Louisiana Oil Refining.	....	.....	4,800	10⅞	11⅝	10⅝	10¾	— ⅛
96	78	100¼	89	$4,000,000	$100	do pfd.	$1.62½	Aug. 15, 29	10	90	90	90	90	— ⅝
25½	12½	18½	11⅝	(sh) 330,000	N.P.	Maracaibo Oil.	....	.....	20,000	13¼	15¼	13	14⅞	+ 3¼
360	250	295	202	$45,942,800	$100	Mexican Petroleum.	$3Q	July 20, 29	.....	....	....	....	....	.....
....	....	....	....	12,000,000	100	do pfd.	$2Q	July 20, 29	.....	....	....	....	....	.....
73	4⅝	69⅜	21¾	(sh) 995,500	N.P.	Mexican Seaboard.	....	Nov. 15, 24	23,600	32⅜	33⅞	30	30⅛	— 1⅜
44½	25⅛	39⅞	30½	(sh) 1,857,461	N.P.	Mid-Continent.	50cQ	Aug. 15, 29	13,200	33⅛	34½	33⅛	34	+ 1½
120½	103¼	121	120¼	$6,718,000	$100	do pfd.	$1.75Q	Sept. 1, 29	.....	....	....	....	....	.....
7⅜	2⅜	5⅛	1¾	23,849,720	10	Middle States.	....	July 1, 23	4,000	2	2	1⅞	1⅞	— ⅛
5⅞	1½	3⅜	1½	5,950,500	10	do ctfs.	....	.....	2,500	1¾	1¾	1½	1½	— ⅛
2¼	1	1½	1	(sh) 3,500,000	N.P.	Pacific Oil.	....	.....	18,400	1	1⅛	1	1	0
55½	38¼	69	40¼	$50,000,000	$50	Pan American P. & T.	....	Oct. 20, 27	2,900	64½	66½	64¼	64¼	+ 2¼
58⅞	37¾	69¼	40½	121,101,400	50	do B.	....	Oct. 20, 27	66,000	64⅛	66¼	64	64⅛	+ ⅛
28⅜	15½	17½	13½	(sh) 400,000	N.P.	Pan American Western B.	....	Jan. 30, 27	120	13⅜	13½	12⅞	12⅞	— ⅜
21¾	11½	15¼	5¾	(sh) 199,370	N.P.	Panhandle P. & R.	....	.....	1,000	6½	7¾	6½	6⅜	+ ⅜
106¼	70	76	47½	$2,935,200	$100	do pfd.	....	July 2, 23	.....	....	....	....	....	.....
53⅞	35¼	47	35	(sh) 2,406,803	N.P.	Phillips Petroleum.	37½cQ	Oct. 1, 29	72,900	38¾	42½	37½	41⅞	+ 3⅞
5¼	½	3⅜	1⅛	$29,622,925	$25	Pierce Oil Corp.	....	.....	4,900	1⅞	2	1¾	1¾	0
50	16¼	51½	30	15,000,000	100	do pfd.	....	Feb. 1, 22	2,000	44¼	44½	43½	43½	+ ⅜
6⅝	3½	5⅞	3⅞	(sh) 2,500,000	N.P.	Pierce Petroleum.	....	.....	4,000	4⅛	4¼	4⅛	4⅛	+ ⅛
64⅝	59½	65⅝	50⅝	$60,636,450	$25	Prairie Oil & Gas.	‡50cQ	Sept. 30, 29	4,900	53	55	53	55	+ 2
....	....	65	53⅝	101,250,000	25	Prairie Pipe Line.	‡75cQ	Sept. 30, 29	5,900	60⅛	61⅝	60⅛	61½	+ 1¼
29⅞	16	25⅞	11½	37,450,850	50	Producers & Refiners.	....	Sept. 15, 23	700	13	14⅜	12½	12½	+ ½
49⅝	41	46¾	27	2,845,350	50	do pfd.	....	May 1, 25	310	38	38	†27	37	— 1
31¼	19	30¾	23¼	75,959,255	25	Pure Oil Co.	37½cQ	Sept. 1, 29	37,900	26¼	28	25¾	27⅞	+ 2½
119	108	116	110½	13,000,000	100	do 8% pfd.	$2Q	Oct. 1, 29	220	111½	114⅜	111⅛	114⅜	+ 3¼
56	23½	49⅝	37⅛	47,127,725	25	Richfield Oil.	50cQ	Aug. 15, 29	13,900	39¼	40⅜	38¼	39	— ¼
....	....	42½	25¼	(sh) 1,200,000	N.P.	Rio Grande Oil Co.	‡$1S.A.	July 25, 29	8,100	28½	28½	27½	27½	+ ⅜
64	44⅝	64	49⅞	(sh) 546,646	$13.40	Royal Dutch N. Y. shares.	$1.873	Aug. 10, 29	259,800	60	63¾	59¾	61⅜	+ 1
57½	39⅜	55⅞	43	(sh) 65,203,000	£2	Shell Transport & T.	$1.447	July 23, 29	300	47¾	49⅛	47¾	49⅛	+ ⅞
39⅜	23¼	31¾	25	12,254,979	N.P.	Shell Union Oil.	35cQ	Sept. 30, 29	39,100	26⅞	27⅞	26½	27½	+ 1
27¼	18⅛	40⅛	18⅛	$8,357,280	$10	Simms Petroleum.	40cQ	Sept. 14, 29	12,100	33	33⅞	31½	32	— 1¼
46¾	17⅜	45	31½	5,494,095	N.P.	Sinclair Consolidated.	‡50cQ	Oct. 15, 29	99,100	34¼	36¾	34⅛	35¼	+ 1¾
110	102½	111	107⅜	$16,025,200	$100	do pfd.	$2Q	Aug. 15, 29	300	109	109	109	109	0
42⅜	25	46½	32⅞	27,396,590	25	Skelly Oil Co.	50cQ	Sept. 16, 29	18,100	41½	41⅞	40	41	+ 1¼
80	53	81⅞	64	(sh) 13,016,435	N.P.	S. O. California.	62½cQ	Sept. 16, 29	38,100	75¾	77½	74½	75	+ 1⅛
59¾	37¾	83	48	$612,095,850	$25	S. O. New Jersey.	‡25cQ	Sept. 16, 29	489,100	78	81¾	77⅝	79⅜	+ 1⅝
45½	28¾	48⅛	37⅝	434,094,575	25	S. O. New York.	40cQ	Sept. 16, 29	105,900	43⅝	46	43½	44	+ ⅜
77	31½	84¾	57	(sh) 1,297,847	N.P.	Sun Oil.	25cQ	Sept. 16, 29	2,500	78⅞	80¼	77½	80	+ 3½
110	100	105½	100	$5,000,000	$100	do pfd.	$1.50Q	Sept. 1, 29	120	103½	104	103½	104	+ ½
14¼	2⅛	24	16½	(sh) 1,304,698	N.P.	Superior Oil Corp.	....	Dec. 20, 20	17,500	18⅜	20	20⅛	20	+ 1⅜
74⅜	50	71⅞	57¼	$211,082,925	$25	The Texas Corp.	75cQ	Oct. 1, 29	87,500	65⅞	67⅞	64⅝	65	+ ⅜
26⅝	12⅛	23⅞	14	8,380,340	10	Texas Pacific Coal & Oil.	2½%s	Sept. 30, 29	5,200	14	15⅞	†14	14¾	— ⅛
41½	19⅝	40	25⅛	(sh) 2,179,275	N.P.	Tide Water Oil Co.	20cQ	Sept. 30, 29	.....	....	....	....	....	.....
100⅛	86¾	97½	89¾	$20,321,000	$100	do 5½% pfd.	$1.25Q	Aug. 15, 29	500	91⅞	93	91⅞	93	+ 1
25	14¾	23½	17	(sh) 4,877,976	N.P.	Tide Water Associated.	....	Aug. 1, 27	19,600	18⅞	19	17⅝	18¼	+ ½
91¾	81⅞	90⅞	84	$72,989,200	$100	do pfd.	$1.50Q	Oct. 1, 29	1,100	85½	86⅞	85½	86⅝	+ 2⅛
14½	6¾	15¼	9	(sh) 3,842,029	N.P.	Transcontinental Oil.	....	.....	120,600	12	13½	12	13⅜	+ 1⅜
58	42¾	54½	45½	$40,858,375	$25	Union Oil of California.	50cQ	Aug. 10, 29	41,600	55⅜	56	52¾	53⅛	— ⅞
128⅛	110	163¾	121⅞	31,101,200	100	Union Tank Car Co.	$1.25Q	Sept. 3, 29	1,600	....	155¼	152½	152½	0
44⅞	26	42⅞	27⅛	(sh) 488,359	N.P.	Warner Quinlan.	50cQ	Oct. 1, 29	10,100	27⅛	30⅛	†27⅛	29⅜	+ 1½
38	20⅛	38	30¼	(sh) 490,000	N.P.	White Eagle Oil & Refining.	50cQ	July 20, 29	3,700	33¾	35½	33¾	35½	+ 1½
22⅜	17¼	29¾	16	(sh) 428,967	N.P.	Wilcox Oil & Gas.	....	May 10, 28	1,200	16⅞	18	16⅞	17¼	+ ¼

•New High †New Low XEx-Dividends ‡Also Extras s-Stock Total Sales 2,051,030

Pittsburgh Stock Exchange

Transactions Week Ended Oct. 11, 1929

	Sales	High	Low	Last	Change
Ark. Nat. Gas.	1,545	23¾	21	23½	+2½
do pfd.	3,827	8½	8¼	8⅜	+ ⅛
Devonian Oil.	1,358	15	14	15	+1
Dixie Gas & Util. pfd.	108	75¼	74	75¼	+1¼
Lone Star Gas.	21,088	65¼	62½	62½	—1¾
Plymouth Oil.	2,560	30	24⅞	30	+6
Pittsburgh Oil & Gas	150	3¼	3¼	3¼	....
Wiser Oil.	80	14	13¾	13¾	— ¾

Pittsburgh Curb Market

Transactions Week Ended Oct. 11, 1929

	Sales	High	Low	Last	Change
Ark. Gas "A".	1,340	23⅜	21½	22⅝	+1¾
Phoenix Oil.	1,000	.65	.65	.65	0

RICHMOND, VA., Oct. 12.—During the first nine months of 1929 $6,064,350 were collected in South Carolina from the gasoline tax, as compared with $5,913,762 for the same period last year, according to W. G. Guery, chairman of the South Carolina state tax commission.

In September of last year the gasoline tax amounted to $519,342. September of this year yielded $695,000 in gasoline taxes. The total of gasoline taxes for this year is $4.918,541. Last year gasoline taxes amounted to $4,042,481 in the first nine months.

OKLAHOMA CITY, OKLA., Oct. 14.—W. M. Sturges, for several years with the Anderson-Prichard Oil Corp., with headquarters here, has been made purchasing agent of that company on Oct. 1, succeeding H. G. Donnell, who has been assigned to other duties, according to L. H. Prichard, president.

ROCHESTER, N. Y., Oct. 14.—C. W. McDonnell has been appointed district manager of the middle west for the Kellogg Mfg. Co., Rochester. Mr. McDonnell's headquarters will be Kansas City.

H. O. Holland has been appointed district manager for New England territory for the same company with headquarters at Boston.

PONTIAC, Mich., Oct. 14.—Forty Oakland and Pontiac Six automobiles were delivered during September to oil companies, according to the Oakland Motor Car Co. Included among these deliveries were 20 Pontiac Six coupes for the Shell Petroleum Corp., St. Louis.

Cleveland Stock Market

Oct. 11	Par Value	Bid	Asked
Canfield Oil Co.	$100	110	146
do pfd.	100	...	...
Fred G. Clark.	10	10	10½
National Refining.	25	40	41
do pfd.	100	131	135
Paragon Refining.	25	16½	19
do pfd.	N.P.	42	50
do ctfs.	..	17	21

x Ex dividend.

ONLY $17.00 INSTALLS

Car-life REGISTERED service

IN YOUR STATION

This small sum provides

COMPLETE SUPPLIES FOR SERVICING 100 CARS 12 TIMES EACH

How much profit do you make on 1,200 lubrications?

It costs less than 1½c per service for this system that *secures* and *holds* the continuous lubrication work of drivers who learn of its many advantages to them.

ADDITIONAL SUPPLIES COST ONLY $4.75 FOR EACH 100 CARS.

Can you afford not to put in this system, that brings in lubrication work and then holds it for you?

National Petroleum News found that Car-Life Service was working such wonders for its operators, that the story of its success in winning friends and building profits was printed in the issue of July 24, 1929.

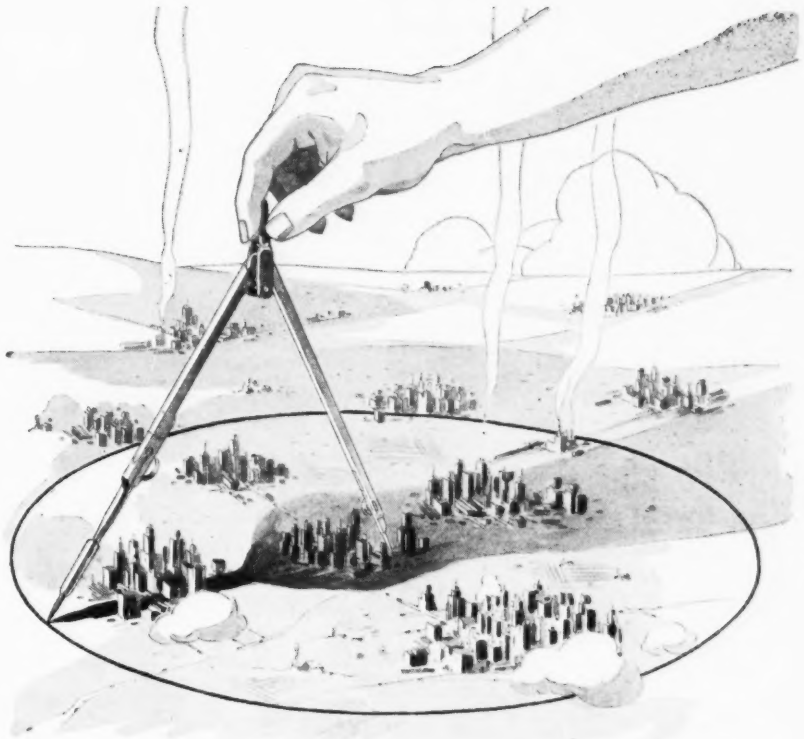
It told how Car-Life Service doubles and trebles lubrication business for operators. Car-Life will do the same for you, if you will let it work for you.

If you have not read this story, we will gladly send you a re-print for the mere request, as well as proofs of the success of the system in the hands of operators.

Drivers are demanding better lubrication. Car-Life gives it.

COREY & McKENZIE COMPANY

OMAHA, NEBR.



NOW is the time to secure a franchise to an *exclusive Motul Territory*

TODAY, the number of Pennsylvania Crude refineries from which the marketer can buy his own brand are fast diminishing. It is therefore urgent that you take steps *now* to protect your *future* source of 100% Pure Pennsylvania Oil.

Motul offers you the opportunity not only to assure yourself a stable supply of 100% Pure Pennsylvania Oil—Swan-Finch Refined from Bradford Crude, the *premier* Pennsylvania Crude—but also to secure a *long-time* franchise to an *exclusive* Motul Territory. This is *your* opportunity—and *now* is the time to take advantage of it. Inquire now about available Motul territories. Phone, wire or write today.

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 26

SWAN-FINCH REFINING COMPANY
205 E. 42nd Street, New York

SWAN FINCH MOTUL

100% Pennsylvania Oil

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Oct. 12 Sales	First	High	Low	Last	Change
22⅜	14⅞	18¾	14¼	£4,126,460	£ 1	Anglo-American Oil	36c	June 5, 29	.....	.....	.....	.....	.....	.....
21¼	15	18	13	.....	....	do certificates	36c	June 5, 29	2,100	14⅜	15	14⅜	15	+ ⅛
20½	14⅜	17	12⅜	.....	£ 1	do cts. non-voting	36c	June 5, 29	1,300	13	13¼	12⅝	13¼	+ ⅛
5	1¼	2½	1	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	200	1¼	1¼	1¼	1¼	0
9¾	3¼	4⅛	1	$10,000,000	$50	do pfd	.....	.....	100	1¾	1¾	1¾	1¾	+ ⅜
56	44½	46½	26	$1,000,000	25	Borne-Scrymser	$1S.A.	Oct. 15, 29	50	26¼	26½	26¼	26½	+ ⅛
76	58	74¼	65	10,000,000	50	Buckeye Pipe Line	‡$1Q	Sept. 14, 29	300	66⅞	67⅛	66⅞	67⅛	+ ⅛
161	117¼	210	140⅛	3,000,000	25	Chesebrough Mfg	‡$1Q	Sept. 30, 29	100	181½	181½	181½	181½	— 7⅛
23	16	29	16⅞	36,123,350	10	Continental Oil	.....	Dec. 15, 27	8,200	18⅜	21½	18⅜	20⅝	+ 2⅜
17½	9½	11¾	7⅜	.....	N.P.	Creole Petroleum	.....	.....	8,400	8	8½	8	8½	+ ⅝
82	67	95	60	1,500,000	50	Cumberland Pipe Line	$1Q	Sept. 16, 29	50	60	60	60	60	0
88	64⅛	70½	50	5,000,000	100	Eureka Pipe Line	$1Q	Aug. 15, 29	150	53	53	52	52	— 5
13	4¼	7	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	.....	....	....	....	....	.....
86	26	90	73½	4,000,000	100	do new pfd	.....	June 30 26	.....	....	....	....	....	.....
89¾	35	88	73½	2,000,000	100	do old pfd	.....	June 30, 26	.....	....	....	....	....	.....
114¾	59¼	128	89⅝	73,685,700	25	Humble Oil & Refining	‡30cQ	Oct. 1, 29	8,800	118¾	120⅝	115⅛	119	+ 1
290½	176½	340½	285	20,000,000	100	Illinois Pipe Line	$10S.A.	June 15, 29	450	300¼	303¾	300¼	300¼	+ ¼
104	56¾	41	26⅝	(sh) 26,421,768	N.P.	Imperial of Canada	12½cQ	Sept. 2, 29	10,400	35⅜	37	35⅜	36⅜	+ 1½
91⅞	74⅝	32¾	26¾	$1,000,000	$10	Indiana Pipe Line	.....	.....	2,800	31⅜	*32¾	31¼	32⅝	+ 1⅜
55	35	29⅜	22½	(sh) 14,247,088	N.P.	International Petroleum	12½c	June 25, 29	27,900	26½	28⅜	26¼	28⅜	+ 2
32¾	19¾	25⅞	19⅛	$6,363,350	12.50	National Transit Co	25cQ	Sept. 16, 29	1,400	20½	21⅛	20¼	20¾	+ 1
75	38½	85	72	1,000,000	10	New York Transit	40c	Oct. 15, 29	.....	....	....	....	....	.....
....	....	....	....	.....	....	do new	.....	.....	100	15	15	15	15	0
69	56½	63	52	2,000,000	50	Northern Pipe Line	$2S.A.	July 1, 29	750	53	53	50	51	— 1½
83½	58½	79⅞	64⅜	60,000,000	25	Ohio Oil Co	50cQ	Sept. 14, 29	800	78⅞	79½	77¾	78¾	+ ¾
84	28	44½	23⅛	10,000,000	25	Penn Mex. Fuel	$1	Sept. 30, 29	5	31⅞	32⅛	28	28	+ 1
220	167	50	36½	4,000,000	25	Solar Refining	$1.25S.A.	June 20, 29	100	37½	37½	37½	37½	+ 1
19	12	23½	13	1,000,000	10	Southern Pipe Line	$1	Mar. 1, 29	100	22	22	22	22	+ ⅛
71⅞	36¾	60¼	40⅜	30,000,000	25	South Penn Oil	50cQ	Sept. 30, 29	2,100	47	49⅝	47	48	— ⅛
102	70	70	56	1,750,000	50	South West Pa. Pipe Lines	$1	Oct. 1, 29	.....	....	....	....	....	.....
95⅞	70⅞	63	51½	348,175,069	25	S. O. Indiana	62½cQ	Sept. 16, 29	51,400	56¼	57¼	55¼	55¾	+ ⅛
27¾	15	32½	18	8,000,000	25	S. O. Kansas	.....	June 16, 24	12,600	25⅞	*32½	24	31⅜	+ 6¼
49	44	46⅜	35½	25,654,516	10	S. O. Kentucky new	40cQ	Sept. 30, 29	33,100	44⅛	*46⅛	43⅛	45⅝	+ 3⅛
54⅝	39⅞	50¼	45½	4,649,225	25	S. O. Nebraska	‡62½cQ	Sept. 20, 29	700	48	48¼	47½	48	0
134	71	129	110¼	14,000,000	25	S. O. Ohio	62½cQ	Oct. 1, 29	550	113	113½	112	112	— 1½
125	116	124½	113½	7,000,000	100	do pfd	$1.75Q	Sept. 3, 29	20	115¾	115¾	115½	115½	+ ¼
23½	16	18	14	861,466	25	Swan Finch	30c	Jan. 15, 29	.....	....	....	....	....	.....
111	72	133¾	105½	126,154,000	25	Vacuum Oil	$1Q	Sept. 20, 29	14,700	123⅝	127½	121⅝	125⅝	+ 1⅜

*New High †New Low ‡Also Extras

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Week Ended Oct. 12 Sales	First	High	Low	Last	Change
1½	.53	.72	.25	$5	Amer. Cons. Oilfields	6,300	⅛	⅛	⅛	⅛	0
9½	3⅛	8¾	3	N.P.	Amer. Maracaibo	6,400	3⅛	3½	3⅛	3⅛	— ⅛
4½	2¼	4¾	1⅝	$10	Argo Oil	100	1¾	1¾	1¾	1¾	+ ⅛
3¾	3⅜	26	3¾	N.P.	Arkansas Nat. Gas	31,500	22	23⅞	22	22¾	+ 1¼
....	....	24¾	6¾	N.P.	do A	112,500	21⅛	23½	21⅛	22	+ 1
....	....	9	7⅞	10	do pfd	1,200	8¼	8½	8¼	8½	+ ¼
55	32¾	70	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23¼	3¾	4⅞	2	25c	Carib Syndicate	3,700	2⅝	2¾	2⅛	2¼	— ⅛
....	....	66⅜	27¾	N.P.	Cities Service new	214,700	62⅝	*66⅜	61¾	66⅜	+ 4⅝
103½	94½	99¼	93½	100	do pfd	1,900	94¼	94½	94¼	94½	0
9⅝	8⅞	9¼	8⅞	10	do pref. B	1,500	9	9	9	9	0
97	88½	96	89¾	100	do pref. BB	500	90	90	90	90	+ ⅛
2¼	1	1½	½	1	Colombia Syndicate	1,200	⅝	¾	⅝	¾	+ ⅛
17¾	9¾	15	6	N.P.	Colon Oil	18,800	7	9¼	7	9	+ 2
8⅞	6¼	11⅜	4⅞	10	Consolidated Royal	1,200	5⅜	5⅜	5⅛	5⅜	+ ⅜
....	....	101	45	N.P.	Cosden Oil Co	1,600	93¾	97¾	93¾	97¾	+ 2⅞
....	....	82	71	....	do pfd	100	75¼	75¼	75¼	75¼	0
3¼	.76	2½	⅝	N.P.	Crown Central	100	⅞	⅞	⅞	⅞	+ ⅛
15	6¾	11⅞	4	N.P.	Crystal Oil	100	4	4	†4	4	— 4¼
50	48	51⅜	51⅛	$100	do pfd	.....	.....	.....	.....	.....	.....
33½	8⅛	26	10	N.P.	Darby Petroleum	4,200	11⅛	13⅞	11	12½	+ 1⅝
2⅞	1	11	2	N.P.	Derby Oil & Refining	8,800	7⅝	8½	7	8	+ ⅛
21⅛	7½	44	20⅞	N.P.	do pfd	.....	.....	.....	.....	.....	.....
165	101⅛	209	142⅛	$25	Gulf Oil Corp	5,700	192	194⅞	190	194⅞	+ 4⅞
7½	5⅝	7½	1⅜	5	Homaokla Oil	3,500	3¾	4	3½	3½	0
3⅝	1	2⅞	1⅜	10	Intercontinental Pet	6,800	1⅜	1⅛	1⅛	1⅜	+ ⅛
3	⅛	3⅜	1⅛	N.P.	Kirby Petroleum	100	2½	2¾	2½	2¾	+ ⅛
9⅜	5⅜	6⅞	2⅞	N.P.	Leonard Oil & Dev	7,800	4¼	4¼	3½	3½	— ¼
43⅜	20	38⅞	23⅜	N.P.	Lion Oil & Refg	4,500	30	32⅞	30	31	+ 3
....	....	67⅞	32¼	N.P.	Lone Star Gas	6,800	63⅝	64⅞	58	62⅞	+ 2⅞
1⅞	.50	1¼	⅜	1	Magdalena Syndicate	2,600	⅜	⅜	⅜	⅜	0
48½	32	38½	18½	N.P.	Margay Oil	1,400	19	19	†18½	18½	— ½
8	2¾	6⅜	2¾	N.P.	Mexico-Ohio Oil	.....	.....	.....	.....	.....	.....
....	....	42	15⅞	N.P.	Missouri-Kan. P. L	15,800	33⅛	34½	32⅜	32⅜	— ⅝
1¼	.76	1½	⅞	1	Mountain & Gulf	1,900	⅞	⅞	⅞	⅞	0
28⅞	19½	22⅞	10	10	Mountain Producers	7,300	10¼	10⅞	10¼	10⅜	+ ⅜
....	....	43⅞	24¾	N.P.	Nat. Fuel Gas (new)	7,600	38⅞	38⅞	37⅛	37⅞	— ⅛
5⅝	4¼	5	3	5	New Bradford	300	3⅛	3⅜	3⅛	3⅛	0
5½	3	3⅞	3	10	New England Fuel	500	3	3	3	3	0
11⅞	7⅛	9⅜	4	1	New Mex. & Ariz	1,000	4¼	4¼	†4	4	0
15⅜	11½	24½	16	25	New York Petrol	200	17⅜	17⅞	17⅛	17⅞	— ⅛
13¼	8⅞	18½	8¾	N.P.	North Cent. Texas	200	11⅜	11⅜	11⅜	11⅜	— ⅜
....	....	19¼	12½	N.P.	Oil Stock, Ltd. A	1,600	13⅝	14⅞	13¼	13¼	— ⅛
....	....	18¼	14⅛	N.P.	do B	200	15	15	15	15	— ⅛
26¼	20	26⅜	14½	N.P.	Pacific Western Oil	600	21½	22	20½	20⅝	+ ⅞
6	2¼	3½	½	N.P.	Pandem Oil	200	⅝	⅞	⅝	¾	+ ¼
15⅝	8¼	10½	3⅞	N.P	Pantepec Oil	4,100	3⅞	5	†3⅞	5	+ 1
20	10⅝	25½	22½	$25	Paragon Refg. B. ctfs.	.....	.....	.....	.....	.....	.....
....	....	34½	24½	N.P.	Petroleum Corp	2,500	24¾	27⅜	24¾	27	+ 2⅛
31⅜	26½	30⅜	22	N.P.	Plymouth Oil	2,300	25	*30⅜	24½	30⅜	+ 6⅜
18	8	16	10	25	Red Bank Oil	300	10	10	10	10	0
13	4⅛	8½	3⅜	N.P.	Reiter-Foster	1,200	3⅜	3⅞	3¼	3½	— ½
31½	23¼	25½	23¼	$25	Richfield pfd	.....	.....	.....	.....	.....	.....
....	....	29	23	....	Root Refining pfd	700	24⅛	26	25½	26	+ 2½
12	4⅝	11	5	N.P.	Ryan Consolidated	200	6	6	6	6	+ ⅜
7¼	5½	5⅞	2	$10	Salt Creek Cons	300	2⅞	2⅞	2⅞	2⅞	+ ¼
35	23¼	25⅞	13	10	Salt Creek Prod	700	13⅜	13⅜	13	13	— ⅜
3½	1	2½	½	5	Savoy Oil	400	1/16	1⅛	1/16	1⅛	+ 1/16
40	27	33⅛	32	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
....	....	24	14½	N.P.	Southland Royalty	1,100	15	15	14⅜	15	0
....	....	12	8	N.P.	Sunray Oil	100	9	9	9	9	+ 1
....	....	23	12½	N.P.	Texon Oil & Land new	500	14⅜	15¼	14⅜	15	+ 1
22⅛	13	16⅞	11⅝	$10	Tidal Osage	.....	.....	.....	.....	.....	.....
21¼	13¼	16½	10¾	10	do not-voting	.....	.....	.....	.....	.....	.....
93¾	75	155	80	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
74¼	18	81½	66	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
9⅛	4¾	6½	3	5	Venezuelan Petrol	2,800	3	3½	3	3½	+ ½
....	....	72¼	66	N.P.	White Star Oil	.....	.....	.....	.....	.....	.....
8¼	4⅞	9⅛	4	1	Woodley Petroleum	1,200	4¼	4½	4¼	4½	— ½
⅝	⅛	5⅜	1	25	Y Oil & Gas	400	1¼	1½	1¼	1½	+ ⅜

*New High †New Low

New York Curb Bonds

Week Ending Oct. 11, 1929

	High	Low	Last	Change
Beacon Oil 6s '36	117	117	117	—3
Cities Serv. 5s '66	86	82	86	+3
Cities Serv. G. 5½s '42	87	86⅜	86⅜	— ½
Cities Serv.G. P. 6s '43	92½	92⅛	92½	0
Cont. Oil 5½s '37	92¼	91⅜	92¼	+ ¼
Empire O & R 5½s '42	87	86¼	86¼	— ⅜
Gulf Oil 5s '37	99½	99⅛	99¼	+ ⅜
Gulf Oil 5s '47	99¾	99	99¾	+ ⅜
Indep. Oil 6s '39	105⅜	104⅜	105	+ ⅝
Shell Union Oil 5s '79	100⅛	100	100⅛	+ ⅛
Sun Oil 5½s '39	100½	99¾	100	0

Oil Dividends

	Amount	Payable	Stock of Record
Okla. Nat. Gas pfd. q	$1.62½	Nov. 1	Oct. 15
Tide Water Oil pfd	$1.25	Nov. 15	Oct. 18
Union Oil q	50c	Nov. 9	Oct. 17
do stock	1%	Nov. 9	Oct. 17

New York Bonds

Week Ending Oct. 11, 1929

	High	Low	Last	Change
Assoc. Oil gold 6s	102	101½	102	0
Atlantic Refg. deb. 5s	100¼	100	100	—1
Cal. Pet. 5s	96	94½	94½	— ½
Cal. Pet. 5½s	99¾	98½	98½	0
General Pet. 5s	99½	99	99½	— ½
Humble Oil & Refg. 5s	99⅞	99	99⅛	— ½
Humble Oil & Refg. 5½s	100	100	100	0
Pan Amer. P & T 6s	107	106	106¼	— ¼
Pan Amer. P & T 6s	96½	94½	96½	+2
Phillips Pet. 5¼s	89	87¼	89	+2
Pure Oil 5½s	98¼	97½	98¾	+ ½
Richfield Oil of Calif. 6s	99½	98¾	99½	0
Shell Union Oil 5s	94½	92⅝	94¼	+1¾
Sinclair Con. Oil 7s	101¾	100½	101½	+ ¼
Sinclair Con. Oil 6½s	99½	98¾	99⅜	+ ⅛
Sinclair Con. Oil 6s D	98¾	98⅝	98⅝	— ⅛
Sinclair Con. Crude 5½s	95	94¼	94½	0
Sinclair Pipeline	93	92¾	93	0
Skelly Oil 5½s	89½	89¼	89½	0
S. O. N. J. 5½s	101	100	101	+ ½
S. O. N. Y. 4½s	94⅜	93¼	94¼	+ ⅛
Trans. Cont. Oil 6½s	101	99¼	101	+2½
Union Oil of Calif. 6s A	105½	105½	105½	+ ½
Union Oil of Calif. 5s C	97	95¾	95¾	—1¼
Warner-Quinlan 6s	96	95	95⅜	+ ⅜
White Eagle Oil 5½s	101¾	101¾	101¾	+ ⅛

(*Continued from Page* 122)

proceeds from an offering of $7,500,000 first mortgage convertible bonds, a part of the $25,000,000 of bonds authorized at a recent special meeting.

F. E. Gilmore Reports Gain in Profits

TULSA, Oct. 12.—The Forrest E. Gilmore Co. in a recent financial statement reported an increase in net earnings of 218 per cent in the first seven months of 1929 over earnings in the like period last year.

Gasoline production for the period in 1928 was reported at 6,633,739 gallons as compared with 10,816,453 gallons in 1929, an increase of 63 per cent this year. Gross income was given as $730,361 for the first seven months of this year as compared with $350,531.94 last year, an increase of 108.3 per cent.

Operating expenses were $417,634 this year as compared with $252,321 for the same period last year. Net earnings were $312,727 this year as compared with $98,211 last year.

The company recently acquired several natural gasoline plants and now operates 17 in various parts of the Mid-Continent, with a daily production of 90,000 gallons.

Merger Rumors Denied

CHICAGO, Oct. 12.—Officials of both Pure Oil Co. and Cities Service Co. have stated there was no basis in fact for rumors that Cities Service was negotiating for control of Pure Oil. The rumors came from Cincinnati.

RICHMOND, VA., Oct. 12.—The Florida supreme court has ruled that the state's first gasoline tax act, adopted in 1913, imposing a $10 license fee upon wholesale oil dealers, has been repealed by passage of subsequent measures on the subject. Two Tallahassee gasoline dealers, who submitted to arrest to test the old law, were ordered discharged.

Financial Notes

Hancock Oil Co.—Net Profit in year ended Aug. 31 was $450,000 after all charges. This amount was 2.38 a share on the 189,000 shares of Class A stock outstanding.

Richfield Oil Co. of California—Following acquisition of control of the Universal Consolidated Oil Co., James A. Talbot, chairman of Richfield, was elected president of Universal and C. M. Fuller, Nion R. Tucker and B. W. Melvin of Richfield were elected directors of Universal.

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Alliance Tank Co.
Allis Co., Louis
Aluminum Company of America 63
American Can Co. 3
American Flange & Mfg. Co.
American La France & Foamite Corp.
American Oil Pump & Tank Co. 90
American Radiator Co.
American Schaeffer & Budenberg Corp.
American Stainless Steel Co.
American Telephone and Telegraph Co.
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Artcraft Sign Co.
Aurora Equipment Co.
Autocar Co.
Au-to Compressor Co.
Automobile Rotary Lift Co.

Babcock & Wilcox Tube Co.
Badger & Sons Company, E. B. Fourth Cover
Barnsdall Refineries, Inc. 87
Battenfeld Grease & Oil Co. 13
Bennett Export Corp. 14-15
Bennett Pumps Corp. 14-15
Berry, Jas. B. Sons, Inc. 113
Bessemer Gas Engine Co.
Bethlehem Steel Co. 80
Biggs Boiler Works Co.
Birmingham Tank Co.
Blackmer Pump Co.
Bowser & Co., Inc., S. F.
Braun & Co., C. F. 61
Breuer Electric Mfg. Co. 84
Brockway Motor Truck Co.
Brookins Mfg. Co.
Brown Sheet Iron & Steel Co. 111
Buckeye Iron & Brass Works.
Budd Wheel Co. 6
Buffalo Meter Co. 84
Bullard Davis, Inc.
Burford Oil Co. 8-9
Butler Mfg. Co.

Campbell, J. A.
Canfield Oil Co., Cleveland
Carbondale Machine Co.
Central Alloy Steel Corp.
Champion Pneumatic Mach. Co.
Champlin Refining Co. 95
Chevrolet Motor Co.
Chicago Bridge & Iron Works
Cincinnati Advertising Products Co.
Classified Advertising 127
Cleveland Brass Mfg. Co.
Columbian Steel Tank Co.
Combustion Engineering Corp.
Continental Can Co. 10
Continental Oil Co.
Continental Refining Co.
Continental Rubber Works
Continental Supply Co.
Cooper-Bessemer Corp.
Cooper Co., C. & G.
Corey & McKenzie Co. 125
Correct Measure Co.
Cosma Laboratories Co.
Crocker-Wheeler Electric Mfg. Co.
Crouse-Hinds Co.
Crown Central Petroleum Corp.
Cushing Refining & Gasoline Co.
Curtis Pneumatic Machinery Co.

Daugherty & Son Refg. Co., W. H.
Davis Welding & Mfg. Co.
Dayton Air Compressors
Deepwater Oil Refineries
Derby Oil & Refining Corp.
Detroit Graphite Co.
Dill Manufacturing Co.
Dodge Bros.
Dodge Steel Co.
Draper Mfg. Co. Third Cover
du Pont de Nemours, E. I. & Co., Inc.
Dyestuffs & Chemicals, Inc. 111

Eaton Bumper & Spring Service Co. 115
Economy Engineering Co.
Edeleanu Process 74
Edwards Mfg. Co.
El Dorado Refg. Co.
Electric Service Supplies Co.
Ellis & Sons, Inc., George D.
Emerson-Scheuring Tank Co.
Empire Oil Works, Inc.
Empire Oil & Refining Co.
Erie Meter Systems, Inc.
Esline Co.
Ethyl Gasoline Corp.
Eureka Machine Co.

Ferro Machine & Foundry Co. 22-23
Fisk Tire Co., Inc. 12
Fiske Bros. Refg. Co.
Flexlume Corp.
Foster-Wheeler Corp. 66
Foxboro Co., Inc.
Franklin Creek Refg. Co.
Freedom Oil Works 85
Frontier Manufacturing Co.
Fruehauf Trailer Co.
Frick-Reid Supply Co.

Galena Oil Corp. 7
General Motors Truck Co.
Gilbert & Barker Mfg. Co. 16
Globe Machinery & Supply Co.
Globe Oil & Refg. Co.
Goodrich Rubber Co., B. F. 123
Goodyear Tire & Rubber Co., Inc.
Gott Mfg. Co., H. P. 80
Granberg Meter Corp. 111
Graver Corp.
Gray Co., Inc.
Gray Processes Corp. 78
Greenspon's Sons Iron & Steel Co., Jos. 1
Griscom-Russell Co. 120
Gulf Ref. Co.

Halliburton Oil Well Cementing Co.
Heine Boiler Co.
Highland Body Mfg. Co.
Highway Trailer Co. 118
Hills-McCanna Co.
Hughes Tool Co. 58
Humble Oil & Refg. Co.
Hybinette, Victor 81

Imperial Refg. Co. 20
Independent Oil & Gas Co. 82
Indiana Truck Corp.
Industrial Oil Corp.
International Combustion Eng. Corp.
International Derrick & Equipment Co.
International Harvester Co.

Jenkins Bros.
Johnson Oil Refg. Co.

Kanotex Ref. Co.
Kellogg Co., M. W. 78
Key Boiler Equipment Co.
King-Seeley Corp.
Klean-Rite Auto Laundry Co.

Ladd Water Tube Boiler Co.
La Salle Petroleum Co.
Leach Co., C. H.
Leader Iron Works
Lientz & Company, B. P.
Lion Oil Refining Co. 19
Louisiana Oil Refg. Co.
Leubri Appliance Co. 99
Luce Trunk Co. 91
Ludlum Steel Co.

Mars Company
Martin & Schwartz, Inc. 21
McDonald Mfg. Co., A. Y. 96
McKee & Co., Arthur G.
Merco Nordstrom Valve Co.
Merit Equipment Corp.
Metal Hose & Tubing Co. 24
Metal Shelter Co.
Metric Metal Works
Meyercord Co.
Mid-Continent Petroleum Corp.
Milestone Meter Systems, Inc.
Miller Son's Co., A. D.
Milwaukee Tank Works
Morrison Bros. 93

National Brake & Electric Co.
National Cantube Co.
National Carbon Co.
National Fire Proofing Co.
National Petroleum News 18-50
National Recording Pump Co.
National Refining Co. 91
National Safe & Lock Co.
National Transit Pump & Machine Co. 78
National Tube Co.
New York Lubricating Oil Co.
North American Car Corp.
Northern Pump Co.

Oakite Products, Inc.
Ohio Steel Foundry Co.

Ohmer Fare Register Co.
Oil Conservation Engineering Co.
Oil Well Supply Co.
Oliver United Filters, Inc. 81
Omar Refg. Co. 5
Ottawa Mfg. Co.
Owens-Illinois Glass Co.
Oxweld Acetylene Co.

Perfection Mfg. Co.
Petroleum Iron Works Co.
Pforzheimer & Co., Carl H.
Phillips Petroleum Co. Second Cover
Pittsburgh-Des Moines Steel Co.
Pittsburgh Equitable Meter Co.
Platt Co., W. C. 80
Pressed Steel Tank Co.
Producers & Refiners Corp.
Pure Oil Co.
Pyrene Mfg. Co. 113

Quincy Compressor Co.

Reading Iron Co. 46
Reid Gas Engine Co., Joseph
Republic Steel Package Co. 14-15
Roper Corp., Geo. D.

Selden Co.
Service Station Equip. Co. 14-15
Service Recorder Co. 117
Shaffer Oil & Refg. Co.
Sharpesville Boiler Works Co.
Silent Glow Oil Burner Corp. 17
Sinclair Refining Co. 100
Sistersville Tank & Boiler Works
Skelly Oil Co. 109
Smith Engineering Co.
Southwest Air Fast Express
Southwestern Engineering Corp.
Spang, Chalfant & Co., Inc.
Standard Boiler & Plate Iron Co.
Standard Steel Works
Steel Drum Accessories Corp. 120
Sterling Motor Truck Co.
Sterling Oil Co.
Stockholm Pipe & Fittings Co.
Sun Oil Co.
Sun Shipbuilding & Dry Dock Co.
Superior Oil Works
Swan-Finch Refg. Co. 125

Tagliabue Mfg. Co., C. J.
Taylor Instrument Companies
Texas Pacific Coal & Oil Co.
Tokheim Oil Tank & Pump Co.
Trailmobile Co.
Transcontinental Oil Co. 2
Tube Turns, Inc. 72
Tulsa Boiler & Machinery Co.

Union Carbide & Carbon Corp.
Union Metal Mfg. Co.
U. S. Air Compressor Co. 4
U. S. Pipe & Foundry Co.
Universal Oil Products Co. 79
Universal Pump & Tank Corp.

Vacuum Oil Co. 88
Viking Pump Co.
Vilter Mfg. Co. 77
Viscosity Oil Co.
Vogt Machine Co., Henry

Wadhams Oil Co. 11
Walworth Co.
Ward Chemical Corp. 113
Warner Mfg. Co. 120
Warren Refining & Chemical Co.
Wayne Co.
Westcott & Greis, Inc.
Wheaton Brass Works, A. W. 42
Whitehead & Kales Co.
Willock Oil Corp.
Wilmoh Mfg. Corp.
Wilson & Bennett Mfg. Co. 103
Winkler-Koch Eng. Co.

York Safe & Lock Co. 103

Zero Hour Torpedo Co.